The Journal

of the

Louisiana State Medical Society

$4.00 Per Annum, 35c Per Copy
Vol. 110, No. 7

JULY, 1958

Published Monthly
1430 Tulane Avenue, New Orleans 12, La.

HOW GOOD IS TODAY'S MEDICAL CARE? *

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Chicago

The United States is the healthiest large nation in the world.

The medical profession, in cooperation with chemists, dentists, nurses, pharmacists, sanitary engineers, hospitals, and other public health personnel of America, has established the finest system of health and medical care in the world. More progress has been made in the field of medical science than in any other single field of endeavor. America has more physicians, nurses, dentists, hospitals, and allied health personnel than most other nations.

And, all this has been made possible through American free enterprise.

Most people take their good health for granted. It is only human nature to do so. When illness strikes, instinctive forces automatically lead the individual to the telephone to contact his physician. The individual rarely takes the time to stop and think about the months, years, and centuries of scientific research and training that men of science have contributed toward making and keeping him healthy.

The doctor has always held a position of unquestioned leadership, respect and admiration in the community, and the tremendous changes in civilization have not modified his position. They have, if anything, complicated his place in society, for today the physician has to think and act in terms of the community and its health needs, rather than in terms of a single ill person.

Today, there are more physicians in the continental United States than ever before. At the end of 1956, there were 229,876 doctors in this nation, representing a net increase of 20,836 since 1950; there is an average of one doctor for every 740 persons. Many people, especially those in some rural areas, still complain of a doctor shortage. Granted there are some areas where a doctor is needed, in the majority of cases there are sufficient doctors and health facilities available to render proper service to the public. Today's modern roads and easy transportation and modern communication systems put the physician, hospital and health facilities of larger communities at the disposal of everyone in the nation within a reasonable length of time.

The success of rural communities in obtaining a doctor for their individual localities rests to some extent on their ability to support him. The steady migration of a large segment of rural population to urban areas, the gradual elimination of the small town trading center, and the lack of cooperation on the part of the community to assume its rightful responsibility of providing proper medical, social and educational facilities have

* Presented at open meeting of the Seventy-eighth Annual Meeting of the Louisiana State Medical Society, Shreveport, May 4, 1958.

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forced many doctors to leave small town practice.

However, the doctor of today in general and the country doctor specifically is able to provide better medical service over a wider area, with the resultant improvement in the health of America. This has been brought about by the doctor's use of the new and improved medical techniques, modern equipment, new and improved drugs, rapid transportation, and modern communication.

Citizens today are acquainted with the meaning and value of good health—not merely good physical health, but good health of the body, mind and spirit.

Just how healthy is America? Well, the 1956 annual report of the United States Public Health Service showed that the health status of the average American is at its highest level. The death rate for 1956 was 9.4 per 1,000 population. When the death rates over a period of years are compared, the age-adjusted rate is often used because it makes allowance for the changes in age composition of the population. In the U. S., between 1940 and 1956, the proportion of people 65 years and over and the proportion of children under 5 years have both increased rapidly, while the proportion of the population between ages 15 and 44 has decreased. The age-adjusted rate for a given year is the death rate which would have resulted if the mortality of each age group during the given year had been experienced by a population with a standard age distribution. Taking as the standard the age distribution of the 1940 population, the age-adjusted death rate was 7.7 in 1956 and 10.8 in 1940. The percentage decrease is 28.7%. The average life expectancy at birth has risen to 69.5 years, compared to a life expectancy at birth of 47 years at the turn of the century.

Last year infant and maternal mortality figures dropped to the lowest point ever recorded in the United States, despite an increase in births. Infant mortality has fallen from 100 per 1,000 live births in 1915 to 26 per 1,000 live births in 1956, when an estimated 4,168,000 children were born. An American mother today has better than 999 chances out of 1,000 to come safely through childbirth.

Perhaps the most significant proof of health progress during recent years is the increase in the number of Americans over 65 years of age. While the entire population of the United States has doubled since 1900—from 75,000,000 to over 150,000,000—the population of persons over 65 years of age has quadrupled—from 3,000,000 to 12,000,000.

The death rate from tuberculosis dropped to 8.3 per 100,000 population in 1956, compared with 22 in 1951.

However, with the increased number of persons living longer, chronic diseases are taking a greater toll of lives. Diseases of the heart and blood vessels and cancer caused two-thirds of all deaths in 1950.

The advance toward a longer and healthier life has been brought about by improved health and medical services, medical research and expanded hospital facilities.

American hospital service reached an all-time high last year. The guide issue of hospitals (American Hospital Association, August 1957) states that 22,089,719 Americans were admitted to hospitals in 1956. Average length of stay in short-term hospitals has however decreased from 40 days in 1900 to 14 days in 1934 to 8.1 days in 1947 to 7.7 days in 1956. Expense per patient day however rose from $10.04 in 1947 to $24.99 in 1956 and the average cost per stay rose from $88.35 in 1946 to $187.43 in 1956.

Many people wonder just who is paying for all these advances in science, and the improved increased medical care the public expects and receives. The answer is simple — private enterprise, the public, government, and the medical care team. All contribute voluntarily toward various funds for medical research, education and the betterment of the nation's health and welfare.

Voluntary health insurance against the costs of hospital and medical care has been developing at a phenomenal rate during the past decade. The public and

the medical profession both are eager to develop this socially useful mechanism. The medical profession is increasing its cooperative efforts with labor, management and community leaders. Voluntary insurance is covering not only larger numbers of people, but is providing more complete coverage as experience proves the soundness of such extension. No movement in modern medicine has been so remarkable as the awakening of a highly individualistic profession to a consciousness of its social responsibility.

Much too much emphasis has been placed on the payment of the doctor's bill. This represents only a minute portion of the problem of the cost of medical care. Chapter one, section one of the Principles of Medical Ethics states that "the prime object of the medical profession is to render service to humanity; reward or financial gain is a subordinate consideration." And, United States government statistics show that the doctor in 1956 received only 27 cents of the individual's medical dollar—five cents less than the doctor received in 1935-1939.

Enrollment gains under all forms of voluntary health insurance have made a significant contribution toward helping to meet the unexpected costs of illness. At the end of 1956, 123,000,000 persons in the continental United States had some form of hospital expense insurance—an increase from 86,000,000 in 1951 — approximately 107,000,000 persons more than in 1941. Some 110,000,000 persons were carrying surgical expense benefit insurance at the close of 1956, which is about 107,000,000 more than in 1941. The 70,000,000 persons who were protected against the expenses of medical care above and beyond those incident to surgery in 1951 represented an increase of 67,000,000 since 1941.

One of the most important steps to be taken by an individual to assure himself that he will obtain the best in medical care is the selection of a family physician before an emergency arises. It is most desirable for each family to have a family physician, whether the physician practices alone or with a group of his colleagues. The practice of medicine is no longer just that of treating the sick, but also that of preventive medicine. Only by an attachment to a family physician will people have the advantages of positive health supervision and of the early and comparatively inexpensive detection of serious illness when it can be most successfully treated.

It is relatively simple to select a family physician. Before a final decision is made, an individual should discuss with the physician his costs and services, and whether or not he will make home calls. A doctor is not a friend if he demands to see the color of money before he offers treatment, if a person is really sick and the doctor refuses to come, if he charges more than the individual can pay and does not discuss fees and services, or if the doctor operates unnecessarily. Such practices are contrary to the Code of Medical Ethics and should not be tolerated.

To insure good health for the entire community, local and state governments must cooperate in making health and medical services available to those who cannot afford them. Access to laboratory and x-ray facilities, and tests for tuberculosis, syphilis and other contagious diseases should be within the reach of every individual in the community who cannot afford these safeguards himself.

Many of the chronically ill are in their present condition because of ignorance, willful neglect or failure to observe and practice even the most elementary principles of hygienic living. Their condition is not due to failures on the part of the medical profession. It is not enough to concentrate on repairing the damage already done to health—it is necessary to prevent new or further damage. This job cannot be done by the medical profession alone. It must be done by every individual in every community. Prevention of disease by developing sound health habits on an individual basis should be the foundation of every community's and every individual's health program.

The splendid record of American medi-

cine is a long one. But, there is another side of American medicine about which most people do not know—that of organized medicine. During the past few years, American medicine has championed the cause of freedom through its opposition to government control of our health facilities and medical manpower. Medicine regrets that it became necessary to enter into such political controversy, but in the interest of preserving the high quality of health care now available, it had no other alternative. More than 10,000 civic, farm, and professional organizations have joined with medicine in opposing compulsory health insurance. The socialization of medicine would be the opening wedge toward the complete socialization of our economy.

Organized medicine has been one of the driving forces behind the campaign to raise the standards of medical education in the United States. In 1900, for example, there were over 200 medical schools in this country, many of which were little more than diploma mills. Today, organized medicine has established standards of instruction and set up a program of approving medical schools and hospitals for intern and residency training. There are now 85 approved medical schools in the country, with an enrollment of over 29,000 students, the highest in history.

It is not generally recognized how great a contribution organized medicine is making to public welfare in disciplining its own members for unprofessional conduct. Some people have said the medical profession is unwilling to discipline its own members, while others have commented that the profession is doing the job, but is taking too much time to do it. My opinion on the subject is that physicians cannot tolerate unprofessional conduct and that they are increasingly willing to assume responsibility for disciplinary action when just cause is shown.

Physicians realize that there is bad and good among any large group of persons, and that the best and quickest way to halt criticism is to face it openly and squarely. Outstanding progress is being made in the establishment of professional conduct committees, where complaints concerning the professional conduct and ethical deportment of individual physicians are heard and investigated, and amicable adjustments attempted. Today all state medical societies, including the District of Columbia and Hawaii, either have created special committees or have specifically delegated the duty of hearing complaints from the public to existing committees.

Another way organized medicine has helped to improve medical care is by the establishment of emergency medical call systems. At the present time, approximately 80 per cent of the country's large medical societies have such plans. In 1948, only about 60 medical societies reported having such a formal plan for handling emergency and night calls; now there are 549 such systems in operation that we know of. The development of an efficient emergency call plan is an important step any medical society can and should take toward assuring the public that medical care will be available when needed.

While every county or city has real emergency cases, not every county medical society needs a formal or organized program for handling emergencies. Those counties where there are few residents and few physicians may effectively rely on the normal physician-patient relationships in emergencies. In a heavily populated county, on the other hand, the greater number of physicians not only makes it difficult for the patient to check through the whole list to find one available, but also makes it difficult for physicians to make any informal arrangements for one of their number to be on call at all times.

Public abuse or neglect of any medical service program can cause its failure. Citizens have a responsibility in their local emergency call plan, namely, to use the service only when necessary. Emergency call plans are for the benefit of the public and require their cooperation.

How good is today's medical care? The only indicators are such factors as the

decreasing death rate, the increasing live birth rate, the increasing longevity, the conquering of diseases, the furthering of medical research and education, and the establishing of plans to aid persons in meeting the costs of medical care.

Admittedly, there are still some things wrong with medicine. But, there is no one individual or profession that can say he or it is perfect. We are continually striving to iron out our difficulties, correct our faults and further improve the nation's health and welfare. We have come a long way toward making our nation one of the world's healthiest nations. We will continue to go forward.

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URINARY TRACT INFECTION IN CHILDHOOD * †

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The urinary tract is probably the most common site of infection, with the exception of the respiratory tract, in infants and young children. Signs and symptoms are often so insidious that such infection was not even well recognized by clinicians until some sixty years ago and the diagnosis is still all too frequently missed. It is a serious disease, with a possible *ultimate* mortality estimated at from 2 to 20 per cent. Urologists do not see most cases and possibly do not recognize its frequency. Urinary tract infection, however, constitutes 1 per cent of hospital pediatric practice and is a very common cause of acute, febrile illness in childhood. Proper diagnosis has assumed more importance than ever, now that modern antibiotics and better methods of treating obstruction are available. In general, this will require hospitalization of the patient.

Urinary tract infection has been labeled as "pyelitis". This is unfortunate because the disease is usually generalized throughout the urinary tract and not confined to the renal pelvis. "Pyuria" is an equally unfortunate term because there may be no pus cells in the voided urine in the presence of severe renal infection.

ETIOLOGY

Eighty per cent of urinary tract infections in childhood are caused by gram negative bacilli. They probably invade by ascending the urethra and it is well known that such infections are six times more common in girls with their short urethras (1.5 cm. at birth, only 3 cm. at puberty). The acute form of the disease, furthermore, is most frequently seen in children under three years—in the diaper age. (It rarely occurs in the newborn period but the route of infection here is usually hematogenous and both sexes are equally affected.) The organisms we have most often found, in order of incidence, have been *E. coli, Proteus, Aerobacter aerogenes* and *Pseudomonas aeruginosa (pyocyaneus).*

Fifteen per cent of infections are coccal. The route of invasion is usually hematogenous and the pathogen is usually the staphylococcus. More rarely, we have found *H. streptococci* and most rarely, fortunately, *Streptococcus fecalis.* Approximately one third of the coccal infections have been complicated by secondary bacillary invasion. In the presence of a coccal infection, probably because it is hematogenous, we have learned to look for an accompanying septicemia or for focal infection in such forms as osteomyelitis or furuncles. In addition, we have begun to worry about antibiotic-resistant strains of staphylococci, especially in the debilitated patient who may pick these up while in the hospital and develop a urinary tract infection on top of his original illness.

Mixed pathogens, *E. coli* and *pyocyaneus* for instance, are a hazard when the

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* Presented at the Seventy-eighth Annual Meeting of the Louisiana State Medical Society, Shreveport, May 6, 1958.

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urinary tract infection is chronic, and should always suggest the possibility of an obstructive lesion.

Tuberculous infection has been very rare in our experience but it should be suspected in the presence of chronic pyuria, acid urine, hematuria and sterile cultures—and a positive tuberculin test. Remember, however, that the smegma bacillus resembles the tubercle bacillus; that many cultures are sterile because antibiotic treatment has temporarily suppressed the pathogen; and, finally, that a dehydrated, vomiting, ketotic child may void acid urine in spite of the fact that many nontuberculous infections tend to create an alkaline urine.

Systemic resistance seems important in etiology, and urinary tract infection is not an uncommon complication of infections elsewhere in the body: the patient may have a coccal infection of the respiratory tract and bacilli in the urine. It is important to watch for such a complication during the course of other, diagnosed diseases, especially if there is an unexplained rise in the temperature or white blood count.

PATHOLOGY

The entire urinary tract is usually infected although symptoms of cystitis are rare in young children. A unilateral kidney infection almost always indicates high obstruction. The kidneys are swollen and may be palpable and tender. (Remember, however, that the kidneys of normal infants are often palpable and are tender if palpated.) There are hemorrhages, pus cells, and interstitial abscesses in the parenchyma and these may produce red cells, white cells and all varieties of casts in the urine. It is here, in the renal parenchyma, that infection wreaks its worst havoc and it is here that a focus of chronic infection may become established. If this chronic infection, with or without demonstrable obstruction, is not obliterated, pyonephrosis may eventually appear (pus alone can obstruct). Finally, even though pus and bacteria are gone, all that remains is a scarred, shrunken, lobulated kidney. The patient appears, clinically, to have chronic glomerulonephritis — and he dies, with growth and time, of renal failure, perhaps years after the original, neglected infection has been forgotten.

SIGNS AND SYMPTOMS

The signs and symptoms of urinary tract infection are vague and variable, which explains, if it does not justify, many missed diagnoses. Suspect it especially with acute illness in girls of diaper age. Suspect it, as a matter of fact, with any undiagnosed febrile illness, with unexplained malnutrition or failure to grow, with unexplained anemia, abdominal pain or gastrointestinal disturbance. Think of it even in the first month of life when there may be no fever.

Often the onset is sudden, with high fever. The highest fevers may accompany renal, cortical abcesses and the urine, at this time, may be normal. Sometimes, the onset is insidious, with moderate fever and irritability. Sometimes, the fever fluctuates widely and may even remit for a day or two. Pallor, more severe than the hemoglobin level explains, may be striking. Vomiting and diarrhea, especially in infants, may be marked and persistent. An attack may be heralded by convulsions and meningismus, simulating meningitis, again especially in infants.

Older children may announce and localize the disease with frequency, dysuria, and vesical discomfort, or with costovertebral angle tenderness—but do not count on it. Perinephric abscess, a complication usually of hematogenous infection, should be suspected if the skin overlying the kidney region is red or edematous, or if abdominal pain is referred to the groin or the thigh. Rarely, as the kidney swells within its capsule and compromises its own blood supply, hypertension and edema may appear; in this situation, and with red blood cells in the urine, acute glomerulonephritis may be erroneously diagnosed.

Do not overlook other diseases: appendicitis may cause pus in the urine; pyloric stenosis with its dehydration may cause albuminuria, casts and occasional pus cells in the urine. But remember that urinary

tract infection may mimic many diseases and there are often no local or specific signs or symptoms. Any child, with unexplained illness, demands a careful examination of his urinary tract.

DIAGNOSIS

Diagnosis depends upon the demonstration of pus and bacteria in the urine. Do not, however, be misled by pus which may originate in the vagina in the presence of any febrile illness or which may contaminate any urine which is not cleanly collected. Do not put too much faith in the importance of "clumped" pus cells, especially in girls where vaginal mucus may be the cause of clumping.

Catheterize females and discard the first few drops of urine before you examine and culture the specimen. With males, try a "clean catch", again discarding the first few drops: If you find pus cells or bacteria under these conditions, you must catheterize.

Examine the specimen within one hour. Do not centrifuge the urine but shake it up. Consider more than two to four white blood cells per low power field as abnormal. Consider all red blood cells and casts as abnormal. Centrifuge a portion of the specimen as soon as possible after voiding and gram stain the sediment: if the preparation is made within one hour after collection and bacteria are visible under the microscope, one may consider that the urine is infected. This is a quick and most valuable procedure but it does not take the place of a proper culture and in vitro antibiotic sensitivity tests on the organism.

Culture promptly and always culture. It is important to assume that a normal urine is always sterile, although some clinicians question this. It is even more important to remember that the sickest child may have no bacteria and no pus in his urine until the infection in his renal parenchyma drains into the collecting system. Thus, a normal, sterile urine by no means rules out a urinary tract infection and examination and culture must be repeated persistently in the presence of a sick, undiagnosed child.

TREATMENT

Urinary tract infection is more common in the debilitated child and the mortality in such a child is higher. Do not neglect the patient's general condition while you concentrate on his local pathology. In the presence of persistent infection, especially, improve his diet and his general hygiene; see that he has adequate rest; search for focal infections in such areas as the teeth, the tonsils and adenoids, the ears and the skin. Guard against dehydration, particularly in the presence of diarrhea and vomiting, but administer fluids with great care in the presence of the oliguria or anuria which may occur with fulminating infection. In any event, do not attempt to "flush" out the urinary tract with heroic amounts of fluid.

Treatment of the acute infection:

The important focus of infection, as stated previously, is in the renal parenchyma so do not bother with acidification of the urine itself. Use doses of antibiotics which are adequate for systemic treatment: smaller doses may concentrate to high levels in the urine but it is the level in the kidney which is critical. In general, dose sulfonamides at 0.1 to 0.2 Gm. per kilo, mycins at 50 mgm. per kilo and polymyxin at 2.5 mgm. per kilo, daily.

Culture at three day intervals and treat until the urine remains sterile for one week, but do not treat for less than a period of two weeks. Culture the urine one week after stopping treatment even if the child appears to be well and the urine sediment is normal. Ideally, culture two or three times during the ensuing six months to make certain that the urine remains sterile.

Choose the antibiotic only after performing in vitro sensitivity tests on the organism. Usually, sulfisoxazole (Gantrisin®) is effective against most Gram negative bacilli of the coli-proteus group and it has the advantage that administration may be by any route. Polymyxin is often effective against *Pseudomonas aeruginosa (pyocyaneus)* and is fairly safe when it is given over a period of

two weeks and dosed at 2.5 mgm. per kilo daily. For Pseudomonas, however, we prefer nitrofurantoin (Furadantin®) or streptomycin. Against *Aerobacter aerogenes*, the tetracyclines and streptomycin are often effective. Lastly, erythromycin has proven generally useful in treating most coccal infections, including the difficult *Streptococcus fecalis*.

Signs of systemic illness subside rapidly, usually within two or three days of the beginning of treatment, but this is no proof whatsoever of a bacteriologic cure. If systemic signs do not disappear promptly, suspect an undrained infection in the renal parenchyma, or a perinephric abscess.

Even an acute infection in a male, and possibly in a female, deserves at least an excretory urogram, and careful observance of the urinary stream since the excretory urogram will not always reveal infravesical obstruction. If the infection flares up *even once*, or lasts longer than three weeks, do not consider this a "recurrence". It is a chronic infection, it is serious and it must be dealt with accordingly.

Treatment of the chronic infection:

Obstruction is demonstrable in 50 to 75 per cent of chronic urinary tract infections and one must assume that chronicity means obstruction until the latter is securely ruled out. The urologist must utilize his several techniques for this purpose. An excretory urogram is usually performed first. Then delayed and voiding cystograms are carried out in order to discover ureteral reflux, urethral malformations, and any dye which remains in the bladder two minutes after voiding. Cystoscopy, with ureteral catheterizations and cultures and a retrograde urogram, is performed. Finally, the urinary stream is carefully observed. If obstruction is discovered by any of these techniques, it is imperative that the urologist relieve it, if this is possible. If he fails to do so, the kidneys may ultimately, and silently, be destroyed, even without signs of further infection.

Nitrofurantoin (Furadantin®) seems to be most generally effective in the treatment of chronic infection, even when this is caused by Proteus and Pseudomonas.[1] Do not, however, use it blindly but only after culture and sensitivity tests suggest that it will be useful. Bear in mind that the infecting organism may change with time or secondary infection may occur: culture repeatedly. It is important to use large doses over a long period of time in order to sterilize the renal parenchyma. Give 7 to 10 mgm. per kilo daily for at least two weeks or until the urine is sterile. Then give 2 to 3 mgm. per kilo daily for three months after sterility is achieved, and culture the urine at intervals during this period. If infection flares up, revert to 10 mgm. per kilo daily until cultures are negative and then 3 mgm. per kilo daily for another three months.

It is sometimes necessary to continue treatment for six months to one year or more, even when obstruction is absent or has been relieved. With persistence, however, nitrofurantoin will abolish most infections if there is no obstruction. Serious toxic reactions are rare and the drug has only one main disadvantage: it must be given by mouth and nausea and vomiting may occur. They may usually be relieved by a temporary reduction in dosage.

Ureteral reflux often means the presence of low obstruction. Some authorities, in fact, believe that it always means this. We have seen it in the absence of any obstruction which we could demonstrate and we have seen it disappear when the infection was cured. In any event, a patient who demonstrates this phenomenon should be instructed to void every two hours during the day, should be awakened two times during the night to void and should have fluid intake restricted after 5:00 P. M.

Obstruction is potentially so serious that it may be well not to leave the subject without mentioning three situations where it should be suspected, even in the absence of infection. First is the child who has persistent enuresis after the age of four years, even when there is no pyuria.

Second is the child whose urinary stream is weak or produced with straining; or the infant who defecates or suffers rectal prolapse or hernial protrusion when he urinates. Third is the child who exhibits hematuria after minimal trauma to the kidney area: this suggests hydronephrosis.

SUMMARY

Urinary tract infection in childhood is a potentially *fatal* warning sign. Even though it is a common disease, the patient deserves hospitalization and careful diagnosis and treatment. Cure of his acute signs and symptoms is not sufficient. Obstruction must be ruled out or relieved and adequate treatment and observation must ensure that his urine remains sterile for at least six months. To do less is to gamble that the kidneys may be silently destroyed and a life sacrificed by neglect.

REFERENCE

1. Johnson III, S. H. and Marshall Jr., M.: Nitrofurantoin therapy of urinary tract infections in children, Am. J. Dis. Child. 89:199, 1955.

THYROCARDIAC DISEASE — FACT OR FICTION? * †

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One of the most challenging enigmas of present-day clinical medicine lies in the subtle role which thyroid gland disorders may play in the etiology and pathogenesis of clinical cardiac disease. This combination of organic disorders occurs most commonly in older people. It is a well known fact that, even in the absence of clinical cardiac disease, thyroid disease may be quite atypical in older people. Many of the classical signs of hyperthyroidism do not occur in considerable numbers of the older hyperthyroid patients. The frequency of late diagnosis and missed diagnosis of myxedema attests to the fact that hypothyroidism also may be subtle, misleading and easily overlooked. When thyroid disorders occur *in combination* with clinical cardiac abnormalities, most of the thyroid symptomatology may be absent or may be masked by the cardiac symptoms, rendering accurate clinical diagnosis difficult.

We do not propose to assert that heart disease is ever entirely due to hyperthyroid conditions, although we think we have seen a very few patients in cardiac failure in whom no other etiological agent except hyperthyroidism could be found by careful study. On the other hand, cardiac decompensation which is entirely secondary to hypothyroidism seems to be accepted as a clinical entity. Regardless of whether its role is primary or ancillary, thyroid disorder in association with heart disease is important, for the control of the thyroid disorder offers a very broad avenue for more successful treatment or even relief of the cardiac disorder.

Since little is known about the incidence or clinical characteristics of thyrocardiac disorders, we proposed to screen a large cardiac population for thyroid disease, then to study the cardiac patients found to have disorders of thyroid function in an effort to learn something about this enigmatic situation.

The usefulness of the protein-bound iodine (P. B. I.) procedure as a diagnostic and research tool in the study of thyroid glandular disorders is well established. Curtis and Swenson [1] concluded that the P. B. I. can be regarded as a reliable index of thyroid function. Riggs, Gildea, Man, and Peters [2] reported the level of blood iodine to be closely related to thyroid ac-

* Presented at the Seventy-eighth Annual Meeting of the Louisiana State Medical Society, in Shreveport, May 6, 1958.

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† This study was generously supported by a grant from the Arkansas Heart Association.

‡ A portion of this project was performed as a Student Fellow under a National Institutes of Health Cardiovascular Undergraduate Training Grant.

tivity. Salter, Bassett, and Sappington [3] presented a report of 100 clinical cases using the protein-bound iodine as a test for thyroid function. Salter and Bassett [4] found there was much better correlation of thyroid disease with the P. B. I. than with the basal metabolic rate. Curtis and Fertman [5] in their analysis of blood iodine in thyroid disease reported that the P. B. I. is of diagnostic significance in instances in which it is difficult or even impossible to obtain a reliable determination of the basal metabolic rate. The differentiation of hyperthyroidism from other conditions in which the basal metabolic rate is elevated can be made with the use of the P. B. I. It is also of value in distinguishing goiter with hyperthyroidism from goiter without hyperthyroidism in which the basal metabolic rate may be increased. Allison and Bliss [6] have previously reported on the value of the P. B. I. in diagnosis of thyroid disorders in selected patients with chronic cardiac conditions.

METHODS OF STUDY

For our survey, the P. B. I. procedure by Barker, Humphrey and Soley [7] was modified and a method developed for measurement of serum iodine-bound-to-protein. The steps involved in this method are: (1) precipitation of the blood proteins; (2) washing of the precipitate; (3) drying and ashing of the preciptate in the presence of sodium carbonate; (4) dissolving the iodine from the ash with hydrochloric acid and sulfuric acid; and (5) assaying the iodine colorimetrically by measuring directly the iodide catalysis of the rate of decolorization of ceric ammonium sulphate by sodium arsenite with the Klett-Summerson photoelectric colorimeter. The normal range for this laboratory was determined by statistical analysis after performing determinations on a number of medical students, staff personnel, and a heterogeneous patient population in the clinics of the University of Arkansas Medical Center.

RANGE OF VALUES

All P. B. I. determinations of our laboratory, over a period of two years, were collected and are referred to here as the "total" group. This group consists of 1,420 persons in whom single or an average of multiple P. B. I. determinations have been used. Figure 1 shows the distribution of

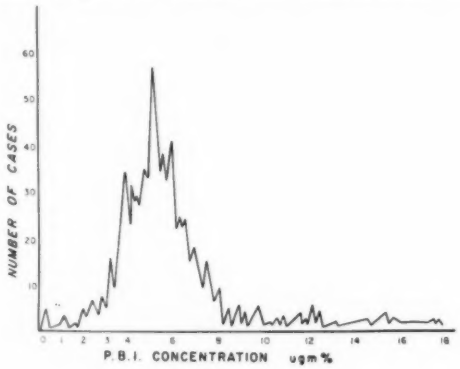

Figure 1

P. B. I. values used to determine the statistical range of normal. The normal P. B. I. range for this total group was found to be 3.5 to 8.0 micrograms per cent. A numerical breakdown of the P. B. I. findings in this heterogeneous clinical population is shown in Table 1. The breakdown shows that 78.9

TABLE 1
TOTAL P.B.I. DISTRIBUTION
TOTAL CASES

P.B.I. mcg. %	No. of cases	Per cent of total		Mean value mcmg. per cent	
0.2-2.0	34	2.4		1.2	
			9.6		2.5
2.1-3.4	103	7.2		2.9	
3.5-4.0	126	9.0		3.8	
			78.9		5.42
4.1-6.0	693	48.9		5.09	
6.1-8.0	301	21.0		6.8	
8.1-12.0	107	7.5		10.2	
			11.5		11.6
12.1	56	4.0		14.3	
Total	1420	100	100		5.8

per cent of the subjects fell into the normal range, and 21.1 per cent fell into the abnormal range, 9.6 per cent being in the hypothyroid group and 11.5 per cent in the hyperthyroid group. The mean value was 5.8 micrograms per cent.

P.B.I. VALUES IN CARDIAC PATIENTS

The Cardiac Clinic was then screened with single or multiple P. B. I. determinations, a total of 509 patients having been tested. Figure 2 shows the scattergraph on these patients. Table 2 shows a numerical

TABLE 2
CARDIOVASCULAR P.B.I. DISTRIBUTION

CARDIOVASCULAR CASES					
P.B.I. mcg. %	No. of cases	Per cent of total		Mean value memg. per cent	
0.0-2.0	4	0.9		1.5	
			7.0		3.7
2.1-3.4	31	6.1		3.3	
3.5-4.0	57	11.2		3.8	
			86.4		5.3
4.1-6.0	282	55.4		5.0	
6.1-8.0	101	19.8		6.78	
8.1-12.0	26	5.1		9.5	
			6.6		11.1
12.1	8	1.5		16.2	
Total	509	100	100		5.53

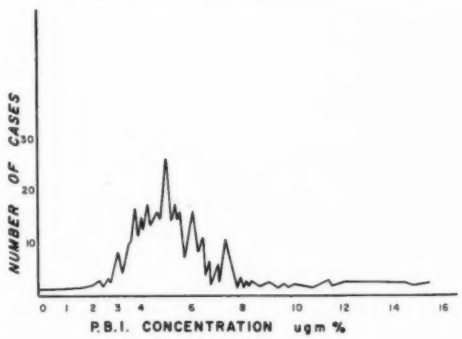

Figure 2

breakdown of the P. B. I. results in these cardiac patients. It will be noted that the scattergraph and distribution figures in the cardiac patients are rather similar to those in the total patient population group. The cardiac group shows a higher percentage (86.4 per cent) of patients who fell into the normal areas. However, in the total unselected group there were many patients who came in with primary and easily recognizable thyroid disease. It is most interesting that in this large cardiac population, all under close medical supervision, there was almost a 15 per cent incidence of patients who had evidence of disturbed thyroid function. Seven per cent of these cardiac patients had low protein-bound iodine values, and 6.6 per cent of them had high P. B. I.'s.

If we combine the heterogeneous group with the cardiac group, 2.5 per cent of the subjects had cardiovascular disease associated with a low P. B. I., and 2.4 per cent of the subjects had cardiovascular disease associated with a high P. B. I. Interestingly enough, 25.5 per cent of all the hypothyroid values found were in the cardiovascular group of patients, and 20.8 per cent of all the hyperthyroid values were found in the cardiovascular cases.

FURTHER EVALUATION OF THYROCARDIAC PATIENTS

The authors thereby secured 69 cardiovascular patients who had abnormal protein-bound iodine values. Detailed examination of these 69 patients showed that 30 of the 69 could be unequivocally diagnosed as hypothyroid or hyperthyroid by clinical and other laboratory means. In this group of patients there was particularly close correlation between clinical diagnosis and values for I^{131} uptake by a method recently described in a series of three papers in the Journal of Clinical Investigation by Meschan, Oddie and Wortham.[8-10] Those patients with abnormal P. B. I. values but whose I^{131} uptake values were normal could not usually be diagnosed as having definite thyroid abnormality. A few patients exhibited a drop or a rise in the protein-bound iodine due to therapeutic or diagnostic measures. Mercurial diuretics, for example, seemed to cause a fall in the P. B. I. Certain individuals were found to have had iodine in the form of saturated solution of potassium iodide, others intravenous pyelograms, gallbladder series, or other radiological determinations in which iodine-containing contrast media had been used.

Of course it is possible that some of these 39 excluded patients may have thyroid abnormalities, the diagnosis of which has been obscured by the diagnostic and therapeutic measures mentioned. In Table 3, however, these 39 patients have been placed in other cardiac classifications and have not been diagnosed as thyrocardiac patients.

CLINICAL CHARACTERISTICS OF THE THYROCARDIAC PATIENTS

Table 3 shows a group of common cardiac manifestations, related to the individual primary cardiac diagnoses involved in our cardiac group study. We do not mean to imply that the 30 patients who had thyroid disease had this as the sole etiology of their

TABLE 3
MANIFESTATIONS OF CARDIOVASCULAR DISEASE

	No.	Aur. fib.	Enl.	M.S.	M.I.	A.I	A.S.	Brady-cardia	Tachy-cardia	P.V.C.	Male	Female
ASHD	166	25	142	0	3	7	2	4	0	16	106	60
HCD	139	14	128	0	0	0	1	2	0	8	60	79
CHD	15	1	5	0	0	0	0	0	0	0	8	7
RHD	65	13	45	31	16	12	5	0	0	2	35	30
AS&HT	28	0	21	0	1	0	0	1	0	4	15	13
LHD	38	3	35	0	0	23	1	0	0	7	36	12
Other	28	2	13	0	1	0	0	0	0	0	19	9
Hyper	13	3	6	1	1	0	0	0	0	0	8	5
Hypo	17	0	8	0	0	0	1	0	1	0	8	9

Legend

ASHD—Arteriosclerotic heart disease.
HCD—Hypertensive cardiac disease.
CHD—Congenital heart disease.
RHD—Rheumatic heart disease.
AS&HT—Arteriosclerosis and hypertension without cardiac manifestations.
LHD—Luetic heart disease.
Other—Unclassified.
Hyper—Hyperthyroid cardiacs.
Hypo—Hypothyroid cardiacs.
Aur. Fib.—Auricular fibrillation.
Enl.—Cardiac enlargement.
M.S.—Mitral stenosis.
M.I.—Mitral insufficiency.
A.I.—Aortic insufficiency.
P.V.C.—Premature ventricular contractions, "extrasystoles."
A.S.—Aortic stenosis.

heart disease. Most of the patients additionally fitted into one or the other etiologic categories, and the thyroid disorder was a complicating but important factor which had been previously unrecognized.

It will be noted that of the 13 hyperthyroid cardiacs, only 3 had auricular fibrillation. No patients had auricular tachycardia. Six had cardiac enlargement. The sex breakdown showed that 8 of these hyperthyroid cardiacs were males, and 5 were females. Of the 17 hypothyroid cardiacs, there were no cases of auricular fibrillation but there was 1 case of auricular tachycardia. Eight of the 17 patients had cardiac enlargement. The sex breakdown shows an almost equal number of males and females in this group.

DISCUSSION

It is most interesting indeed that only the minority of the hyperthyroid cardiacs had clinical dysrhythmias, contrary to the usual beliefs concerning thyrocardiac patients. The only auricular tachycardia patient in the entire thyrocardiac group was an individual who had myxedema in association with heart disease. Rather than revealing a distinct thyrocardiac syndrome, this study has shown that most of the patients fell into a bizarre group of intractable cardiac-failure patients, in whom diagnosis of the thyroid disorder was largely obscured by the cardiac manifestations, but in whom correction of the thyroidal abnormality greatly benefited control of the congestive manifestations. Therefore it would appear that there is a significant incidence of concealed thyroid dysfunction in cardiac patients. Among the hyperthyroid cardiacs, intractable and bizarre congestive failure is a more common manifestation of this combined disorder than is auricular dysrhythmia, as is the case with hypothyroid patients. Diagnosis and control of the thyroid condition yields much potential benefit in correcting the cardiac manifestations.

ACKNOWLEDGEMENT

The authors wish to acknowledge the assistance of Owen W. Beard, M.D., Little Rock, Arkansas; Habid Sadik, M.D., Bagdad, Iraq; and James S. Taylor, M.D.,

U.S.A. Retired, Little Rock, Arkansas, in this study.

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SOME SPECIFIC USES OF HYALURONIDASE

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The use of hyaluronidase to increase the rapid absorption of fluids given by hypodermoclysis has been conclusively determined by many observers. That it has other practical applications as observed by me, is the reason for this communication.

It is interesting to learn that hyaluronidase is an enzyme that may be obtained naturally from many sources and acts specifically, according to the manufacturers, by hydrolyzing hyaluronic acid. "Hyaluronic acid is a mucopolysaccharide acid which in animal tissues seems to bind water in interstitial spaces." It further holds cells together in a jelly-like matrix. "It is disaggregated and depolymerized by the action of the enzyme hyaluronidase". Its action is local and no reports of its effect on infections distant from the point of injection have been noted. It is of exceedingly low toxicity and thus far no fatalities from its use have been reported.

Several cases of pleurisy with effusions following pneumonia have yielded successfully to two or three withdrawals of fluid and injection of 500 units of alidase freshly prepared, through the needle through which the fluid had been withdrawn.

Ganglions at the wrist have disappeared after one injection of alidase, the amount of alidase depending on the size of the tumor. The ganglion will disappear if properly injected even if the jelly-like contents are not withdrawn prior to the injection of alidase.

Traumatic cysts at the elbow containing either serum or blood have been made to disappear after one or two injections following withdrawal of fluid.

A traumatic bloody effusion in the knee was successfully treated by rest for several days with subsequent withdrawal of the bloody fluid and several injections of alidase and penicillin, in spite of the fact that many investigators report that the enzymatic action of hyaluronidase is inhibited by blood serum. The penicillin was added because of the marked susceptibility of the knee-joint to infection.

Several knee-joints into which hydrocortisone had been injected with unsuccessful results, were completely relieved by one or two injections of 500 units of alidase into the joint.

A cyst filled with creamy fluid which the pathologist thought was from a salivary gland situated under the angle of the jaw, probably a submaxillary gland, was treated successfully by previously mentioned method, withdrawal of fluid and injection of alidase.

I have had no experience injecting cavities containing fluid of malignant origin,

but I am inclined to believe the efforts are worthwhile to temporarily remove the fluid and thereby make the patient more comfortable.

In all of these cases reported, I have used Alidase, a Searle & Co. preparation, which according to the literature is derived from bull testes. However, hyaluronidase has been found in extract of spleen, the ciliary body and the iris, the venom of snakes, in spermatozoa, in teeth tissue, and in many other organic substances.

The simplicity of the use of this method makes it applicable in office practice. Previous to the adoption of this method, surgery had been necessary in most of these conditions.

Note: Since the above article was written I have had an opportunity to use Alidase following paracentesis of the abdominal cavity for generalized carcinomatosis. I was able to prolong the intervals between "tappings" by several weeks.

—o—

HIATUS HERNIA *

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Recent studies have resulted in a better understanding of the problem of hiatus hernia and an improvement in methods of management. The frequency of esophagitis as a complication has become more widely recognized. The importance of gastroesophageal reflux as a cause of esophagitis has been established. At the same time, improvements in technique have made surgery a more available method of treatment for patients with this condition.

There are several anatomic types of hiatus hernia. In the common forms, radiologic examination reveals that the gastric pouch and the gastroesophageal junction are both located above the level of the diaphragm. Two types of configuration are encountered. In the more frequent type, the lower end of the esophagus appears to enter the herniated stomach at the summit of the hernial pouch. This is the so-called "sliding hernia." In the second type the esophagus enters the stomach laterally and the herniated portion of the stomach often has an undulating contour suggesting that initially the fundic portion of the stomach preceded the cardia in its passage through the diaphragmatic hiatus into the chest. These two types of hernia will be referred to as the "sliding" and the "rolling" types.[1]

Two other anatomic types of hiatus hernia also occur but are much less common than the sliding and rolling hernias. In one of them, the cardio-esophageal junction is located definitely below the level of the diaphragm. This may be considered to be a true paraesophageal hernia. The other rarest type of hernia is one in which the esophagus was congenitally short and a portion of the stomach has been present in the chest since birth. This is the congenital short esophagus type of hiatus hernia and may be interpreted as being a partial thoracic stomach rather than a hernia.

The physiologic behavior of the cardia is abnormal in many patients with hiatus hernia. In normal individuals it serves to prevent regurgitation of the gastric contents into the esophagus. The local mechanisms which theoretically may serve this purpose are three in number. The first is the acute angle of junction of the lower esophagus and the fundic portion of the stomach. It is postulated that when the stomach is filled, the fundus presses laterally against the lower esophagus and a one-way valve-like action is produced which prevents regurgitation into the esophagus. A second possible mechanism is the constricting action of the diaphragm on the esophagus, as the latter passes through the hiatus. This constricting action of the dia-

* Presented at the Twenty-first Annual Meeting of the New Orleans Graduate Medical Assembly, March 3, 1958.

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phragm may be observed during x-ray examination and may play some rôle in preventing gastroesophageal reflux. The third mechanism for the prevention of regurgitation is the tonic contraction of the lowermost portion of the esophagus. This is perhaps the most important of the three mechanisms for the prevention of gastroesophageal reflux. Although there is no histologic evidence of a sphincter in this region, recent physiologic studies have demonstrated that a sphincter-like action of the muscle of the esophagus does exist in this area.[2] This also happens to be the site of increased muscle tone which produces the obstruction in idiopathic cardiospasm.

The cardiac sphincteric mechanisms can be studied readily by either clinical or laboratory methods. Competence of the cardia can be tested during a routine radiologic examination. For this purpose, the stomach is first filled with barium. The patient is next placed in the head down position and is examined both prone and supine while asked to strain in order to increase intra-abdominal pressure. The lower esophagus is meanwhile observed for evidence of regurgitation of barium. No regurgitation of barium will be observed in 98 per cent of normal adults.

Another relatively simple method for the demonstration of gastroesophageal reflux is intubation of the esophagus. For this purpose a small bored tube is swallowed so that the tip is located in the lower third of the esophagus. Histamine is given in order to stimulate the secretion of hydrochloric acid and the patient is placed in the Trendelenburg position. Periodic aspirations are carried out to ascertain whether free acid can be obtained from esophageal levels. No acid is found in the esophagus in 90 per cent of normal adults.

The sphincteric action of the lower end of the esophagus which appears to play an important rôle in preventing acid reflux can also be demonstrated by direct measurement of intra-estophageal pressure.[2] An open tipped catheter is passed to the level of the diaphragm and intraluminal pressures are recorded at various levels of the lower esophagus. Such measurements indicate that there is an increased tonus of the resting esophagus in the area at the diaphragmatic level, as compared with other parts of this organ, suggesting a true sphincteric action.

Gastroesophageal reflux can be demonstrated in many patients with hiatus hernia by means of these various techniques. In a series of patients studied at The Presbyterian Hospital, x-ray examination revealed evidence of an incompetent cardia in approximately 50 per cent of examinations. Esophageal reflux was also demonstrated by the intubation technique in about 50 per cent of patients.[3]

The actual incidence of reflux which occurs under physiologic conditions in patients with hiatus hernia may not be revealed by studies of this type. The results of the various methods of study are not always consistent. Tests may be positive on one occasion and negative on another in the same individual. When both x-ray and intubation studies were carried out on the same patient, reflux was found by at least one method in two-thirds of patients. It seems very likely that reflux occurs under natural conditions more often than the tests indicate. In any event, it is justifiable to conclude that gastroesophageal reflux is a common occurrence in patients with hiatus hernia.

Incompetence of the cardia is currently regarded as the basis for the esophagitis which is frequently seen in patients with this disorder. Esophagoscopic examination often reveals changes in the lowest portion of the esophagus immediately above the cardia. Reddening, friability, granularity or superficial ulceration of the mucosa may be seen. When the lower end of the esophagus is studied in patients with hiatus hernia through the esophagoscope, the cardiac orifice often appears abnormally patulous. Fluid regurgitates freely from the gastric pouch into the esophagus. These inflamatory changes in the lower esophagus may progress to the formation of stricture. One may conclude that the various inflamatory changes in the lower esophagus are secondary to the irritating action of regurgitated

gastric juice. The squamous epithelium which lines the esophageal mucosa does not appear to withstand the action of digestive juices.

RESULTS OF MEDICAL MANAGEMENT

A study of the results of medical management in a series of patients with this disease was recently carried out.[4] Almost all patients were individuals who were experiencing symptoms which appeared to be at least partially attributable to the presence of the hernia.

The incidence of associated diseases in this group of patients was of interest. The most common associated lesion was a peptic ulcer, which was located either in the stomach or duodenum. Diseases of the biliary tract and coronary arteriosclerosis were also common. Seventeen per cent of patients either presented evidence of cholelithiasis or had previously undergone cholecystectomy. Only half of those patients who had undergone removal of the gallbladder had been found to have gallstones, and it appeared that, at times, the gallbladder had been erroneously removed because of symptoms due to hiatus hernia. Over 25 per cent of our patients with hiatus hernia also had either gall bladder disease or peptic ulcer. There appears to be a striking incidence of associated abdominal visceral disease in patients with hiatus hernia.

Coronary disease was considered to be present when patients complained of substernal pain in response to exertion as well as symptoms which seemed attributable to hiatus hernia. Most patients with anginal symptoms also presented electrocardiographic evidence of coronary disease. The incidence of coronary disease in our patients with hiatus hernia did not appear to exceed the natural expectancy for the age groups in the series.

The most common symptoms in this series of patients with hiatus hernia were substernal burning and a sense of gaseous distention which was usually referred to the xiphoid region or to the epigastrium. These types of distress came on characteristically after meals and during the night. Some patients complained of frank substernal pain occurring periodically, usually relieved by alkalies. Gross hemorrhage was encountered in 18 per cent of those patients with hiatus hernia who did not have associated radiologic evidence of a peptic ulcer in the stomach or duodenum. Difficulty in swallowing was a very frequent symptom and was noted, at times, in somewhat over one quarter of the patients.

The program of medical treatment was composed chiefly of a dietary regimen and the use of antacids. Small frequent bland feedings and various alkalies between meals was advised. The patients were instructed always to avoid the horizontal position, which both favors herniation of the stomach and also causes regurgitation of the gastric contents into the esophagus. The institution of this program of therapy was usually followed by a rapid decrease in the severity of the distress in the majority of patients. After a period of symptomatic improvement, many patients were prone to modify this regimen depending on their symptomatic course.

The series included 120 patients who were observed for an average period of four years. The results were most easily appraised in terms of patient years. The result for any given year was considered satisfactory if the patient remained either free from symptoms or suffered from only mild distress such as heartburn or gaseous distention readily relieved by medications.

The patients with hiatus hernia in whom no associated gastric duodenal ulcer was present, experienced a satisfactory follow-up course during half of the years of patient observation. Moderate or severe symptoms occurred during the other half of the period of observation. The patients were not often incapacitated by their disease. Severe symptoms including gross hemorrhage, severe ulcer-like pain or marked dysphagia sufficient to necessitate a period of hospitalization, occurred only about once in every ten years of patient observation. The remaining period of long-term observation was usually marked by symptoms of moderate severity.

With a single exception there was no mortality in the 120 patients observed for an average period of four years. One death occurred in a patient with an associated

gastric ulcer who underwent surgical intervention because of acute hemorrhage from the ulcer. The course of the patients with hiatus hernia with no associated ulcer in the stomach or duodenum was, on the whole, benign.

However, there is a group of patients with hiatus hernia who suffer frequent and rather severe substernal distress. In the patients studied in our Clinic, this group constituted a little over 10 per cent of those individuals with hiatus hernia without associated gastroduodenal ulcer. These were patients who complained rather continuously of nocturnal heartburn or substernal pain persisting for many months or even for years. The symptoms could not be satisfactorily controlled by the usual therapeutic measures. A number of these patients were finally subjected to operative repair of the hernia.

There was no factor common to all patients which appeared to account for this type of unfavorable clinical course. The hernias were of all sizes, small, medium or large. Intractable symptoms were seen in patients with all types of hernia—the sliding, rolling, paraesophageal and congenital short esophogus types. Esophagitis was demonstrated in some patients by esophagoscopic examination but was absent in others although the patients were examined during a symptomatic period. Gastroesophageal reflux was demonstrated in some patients but could not be found in others. The findings at operation were of interest. In those patients who were subjected to operation, inflammatory changes about the site of the hernia were evident in some instances. However, such changes were not evident in other individuals with similar symptoms. Emotional factors were also considered to play an important rôle in some of the patients with intractable distress. It was often difficult to be certain to what extent emotional problems affected the clinical picture.

The mechanism of persistent distress in patients with hiatus hernia is not entirely clear. It appears that esophagitis, mechanical factors related to the hernia itself and personality factors, all may play a rôle.

PROGNOSIS IN HIATUS HERNIA

The long-term prognosis for patients with hiatus hernia is an important problem. The need for surgical intervention depends in part on the possibility of the development of complications under medical management. Our studies fail to indicate that there is much tendency for the disease to worsen with the passage of the years in the average patient.

Symptoms of hiatus hernia are, in general, of about the same severity during the first year of illness as during subsequent years. Our patients who were under treatment during the first year of symptoms had, as a group, symptoms of the same frequency and intensity during the first year of observation as was observed in patients whose symptoms were of longer duration.

Stricture of the esophagus may develop at any time in a patient with hiatus hernia. Among 100 patients with simple hiatus hernia in our Clinic there were 10 individuals with stricture. Dysphagia was the first symptom of hiatus hernia in 2 of these patients. Dysphagia first appeared in the other 8 patients at intervals which varied from eight months to more than twenty-two years after the onset of symptoms attributable to hiatus hernia.

Two findings seem important prognostically in patients with hiatus hernia. These are the presence of esophagitis as seen at esophagoscopy and the coexistence of a gastric or duodenal ulcer. Associated ulcerative disease either in the esophagus, stomach, or duodenum appears to be accompanied by a poorer prognosis than that which is found in the patient with an uncomplicated hiatus hernia.

Esophagitis as visualized through the esophagoscope can be demonstrated in at least one half of the patients who have relatively severe symptoms. It is commonly found in patients with substernal pain of the ulcer type or in patients who have sustained gross hemorrhage. It appears to be the origin of bleeding in many of the patients with this disorder who manifest gross or microscopic hemorrhage. Esophagitis is, moreover, the basis for stricture

formation in other patients. The long-term follow-up course of patients with an established esophagitis is somewhat poorer than that of the average individual with a hiatus hernia.

Patients with peptic ulcer as well as hiatus hernia are prone to have more trouble than those with a hiatus hernia alone. In our experience, this combination has resulted in moderate or incapacitating symptoms during approximately two-thirds of the years of patient observation, as compared with 50 per cent of patient years in the individuals with hiatus hernia without associated gastroduodenal ulcer. Esophagitis is found very frequently in the patients with associated peptic ulcer. Complications such as hemorrhage and stricture are more common in this group of patients. It is, of course, often difficult or impossible in such patients to distinguish between the symptoms which are due to the ulcer and to the hiatus hernia.

We have been unable to establish any relation of a number of other factors to prognosis. The size and anatomic types of hernia have little prognostic significance. Patients with larger hernias, as a group, have experienced a clinical course which was essentially no different from those with small hernias. Furthermore, no significant differences have been noted between patients with the sliding and rolling hernias. Patients with rolling hernias had symptoms of essentially the same severity as those with the sliding type. Hemorrhage occurred as a complication frequently in both types of hernia. However, others have reported fewer complications in patients with a rolling hernia.[1]

The ability to demonstrate gastroesophageal reflux on radiologic examination also has no prognostic significance. In a study of this problem reflux was observed in 31 of 70 patients when it was carefully sought for. The overall results in the patients with demonstrable reflux did not differ significantly from the results in the group as a whole.

COMPLICATIONS OF HIATUS HERNIA

Hemorrhage has been a complication in 18 per cent of our patients with hiatus hernia without gastroduodenal ulcer. The hemorrhage was usually not severe although it occasionally has produced clinical shock. There has been no mortality. Hemorrhage occurring in patients with hiatus hernia is not as dangerous as hemorrhage in patients wth duodenal ulcer. Multiple hemorrhages have been recorded in about 5 per cent of our patients with hiatus hernia. Our experience with the follow-up course after multiple episodes of bleeding is too limited to justify analysis.

Dysphagia is a rather common complaint in patients with hiatus hernia and has occurred in more than a quarter of our patients. It varies from a mild sense of obstruction while swallowing solid food to complete inability to swallow or retain liquids. It is attributable to a stricture in some instances but often occurs also in individuals who present no objective findings other than the hiatus hernia alone.

Dysphagia may apparently result from obstruction to the passage of food at the level of the diaphragmatic hiatus. For example, an impaction of a bolus of food in the stomach pouch above the diaphragm was noted radiologically in one patient with sudden dysphagia. Another patient with dysphagia was accidentally shown on x-ray examination to have retained telepaque tablets in the supradiaphragmatic portion of the stomach for twelve hours after ingestion. A contraction ring of the type described by Kramer and Ingelfinger located at the lower end of the esophagus occasionally appears to account for dysphagia in patients with hiatus hernia.

A stricture at the distal end of the esophagus is a frequent cause of dysphagia. Its presence is usually suggested by the symptoms and radiologic findings. The obstruction can be readily confirmed by means of the passage of a No. 34 French stomach tube which contains a flexible metal obturator.

Most patients with a stricture of this type can be successfully treated by means of periodic dilations with appropriate metal bougies. Relatively few treatments are required in order to dilate the stricture adequately. The subsequent clinical course in

patients with stricture is fairly satisfactory, as a rule, and the patients are seldom incapacitated by symptoms. From time to time the stricture tends to recur and repetition of the dilation with metal bougies is necessary occasionally in most patients. This is readily accomplished if undertaken promptly after the recurrence of the difficulty in swallowing. Occasionally dilation of a stricture with hiatus hernia is found to be technically impossible and surgical intervention may be necessary.

SURGERY FOR HIATUS HERNIA

In recent years, experience with the surgical repair of hiatus hernia has broadened and, on the basis of the available data, it is now possible to predict with some accuracy the results which can be anticipated following surgical procedures for this lesion. It has become apparent that a successful repair can be expected in a larger proportion of patients than formerly if certain principles in technique are observed. The results of surgery for hiatus hernia at The Presbyterian Hospital have recently been reviewed by Humphreys and associates.[5] In a series of patients who were operated upon in recent years by a group of surgeons who have made a special study of this problem, a follow-up survey revealed that 85 per cent of individuals had had satisfactory results. There was no operative mortality in this group. The current operative procedures yield results which contrast sharply with the earlier experiences in the same Clinic with the surgical repair of hiatus hernia. A survey of the earlier cases, operated upon by a variety of techniques, showed that only about one third of the patients had really had a satisfactory follow-up course. Great progress has clearly been made in surgical therapy and better results may now be anticipated in most patients who undergo operative repair of a hiatus hernia.

Surgery for hiatus hernia with stricture poses a much more complicated problem. Simple resection of the lower esophagus often yields unsatisfactory results. At the present time the procedure of choice at The Presbyterian Hospital involves resection of the lower esophagus and the transplantation and interposition of a jejunal segment between the esophagus and the stomach in place of the resected portion of the esophagus. This major technical procedure is accompanied by a considerable operative risk and has not been recommended for patients with stricture unless periodic dilation was unsuccessful.

The prognosis of patients with hiatus hernia under medical management may be summarized as follows: The long-term clinical course of most patients with hiatus hernia is quite benign. During about half of the follow-up years the patients remain either symptom-free or have, at most, mild heartburn or indigestion readily relieved by simple remedies.

Comparatively unsatisfactory medical results are obesrved in three groups of individuals. These groups tend to overlap.

1. A small group have intractable pain or substernal distress. The intimate basis for severe distress is not well understood. Esophagitis, mechanical factors, or personality problems may play an important rôle.

2. The prognosis in patients with hiatus hernia and an associated ulcer of the stomach or duodenum is also relatively unsatisfactory. Moderate or severe symptoms recur during about two-thirds of the follow-up years.

3. The presence of esophagitis gives rise to complications such as hemorrhage or stricture. The majority of patients with hemorrhage or stricture fare quite well under conservative management.

4. Surgery may be considered particularly for patients with intractable distress from hiatus hernia. Patients with an associated peptic ulcer of the stomach or duodenum may also require surgical intervention.

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RECENT ADVANCES IN THE USE OF ARTERIAL GRAFTS *

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In the past ten years an ever widening area of arterial disease has been successfully treated by graft replacement. Beginning with the use of autogenous veins to replace injured arteries, the indications for arterial grafts have increased prodigiously. The introduction of methods of preservation of arterial homografts gave a tremendous stimulus to the field of arterial surgery, beginning with Gross's [4] work with fresh homologous arteries in long aortic coarctations. The expanding need for arterial substitutes soon outpaced the supply of available homgrafts in most Medical Centers. Late degenerative changes of dilatation or occlusive atherogenesis in homografts have also led to a search for more satisfactory substitutes.

TYPES OF SYNTHETIC GRAFTS

The demonstration by Voorhees and Blakemore [7] that synthetic cloth tubes would serve as durable replacements for arteries was the next forward step. Tailored tubes of vinyon, orlon, nylon, could be fashioned on a sewing machine in the operating room after exposure of the diseased vessels. This was a major advance but a number of technical problems remained in making a really practical and versatile graft of synthetic material. Cuffs and seams made the tailored prosthesis difficult to suture. Ordinary cloth is usually so porous that considerable blood loss occurs at the time of insertion. Lastly, a collapsible cloth tube if not placed under exactly the right tension, is subject to wrinkling or buckling with resulting thrombosis. With a collapsible fabric, flexion of the graft across a joint such as the knee would be dangerous, and by-pass grafts difficult to accomplish.

We were fortunate to have the assistance of the Chemstrand Corporation Research Laboratory in solving many of these difficulties. Braided nylon tubes were developed with crimps or corrugations to prevent kinking.[1, 2] The tube ends could be heat-sealed to eliminate the need for cuffs to prevent fraying. "Y" shaped tubes were developed for replacement of the frequently diseased aortic bifurcations. For the past three years these nylon tubes were used in large numbers by our clinic and others with satisfactory results. It was realized early in this development that nylon was not the ideal fiber. Despite its initial superior tensile strength, reaction to tissue fluids causes slow decrease in strength in the first two years after implantation. This is true to less degree of orlon, vinyon, and dacron.[5] Only teflon (Dupont's trade name for its polytetrafluorethylene fiber) shows no tissue reaction, no water absorption, and no loss of tensile strength after several years.[5] Recently methods have been developed for crimping tubes of teflon, and knitted tubes of this material have been used clinically for the past six months. The knitted construction allows easy suturing of the tube end without fraying and without the necessity of heat sealing. This tube is much easier to insert than nylon, and approaches more closely the ideal graft.

CURRENT USE

Grafts currently are used for replacement of aneurysms, and injured arteries, and to by-pass arterial obstructions. Of particular interest recently has been the clinical possibility of relief of carotid artery obstructions due to plaque formation at the bifurcation of the internal carotid. Patients with transient episodes of unilateral arm and leg weakness, facial paralysis, monocular blindness and aphasia have the best prognosis since these patients often have stenosis, not complete occlusion of the internal carotid. Even strokes with complete hemiplegia if treated in the first forty-eight hours may occasionally be relieved if the fresh carotid thrombus can be aspirated. Evidence is increasing that more strokes than realized are due to extracranial rather

* Presented at the Seventy-eighth Annual Meeting of the Louisiana State Medical Society, in Shreveport, May 7, 1958.

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than intracranial carotid thrombosis. In our clinic Lyons and Galbraith [6] have developed a subclavian to internal carotid shunt to restore carotid flow. By suturing the proximal end of the shunt to the subclavian artery, it is never necessary to occlude the common carotid artery with its valuable collateral blood supply.

The most frequent single indication for arterial grafts has been segmental occlusion of the femoral arteries. Again the best results can be anticipated when the process is seen earliest, that is, when the symptom of calf claudication on walking is the only complaint. It was originally believed that the presence of gangrene of the toes, constant pain at rest, and severe color change in the extremity on dependency always indicated diffuse arterial obstruction. We now know this is not always true, since a number of such cases have been demonstrated by arteriography to have long segmental obstruction with patent vessels beyond.

ARTERIOGRAPHY

More and more we feel that every limb in which the popliteal pulse is absent should be subjected to arteriographic study before therapy is planned, or before the leg is amputated. Too frequently still the objective of arteriography is poorly understood. An arteriogram should, of course, demonstrate the site of origin and length of arterial obstruction but these objectives are less important than adequate visualization of the arterial pathways distal to the obstruction. If the popliteal branches in the calf are obstructed, any type of grafting or thrombectomy procedure will be doomed to failure from inadequate run-off. The arterial system should be visualized down to the ankle in cases of femoral obstruction. A Cassette changer, manually operated, which will allow exposure of 36 inch films at 1 second intervals has been a great help in obtaining complete information in regard to the arterial circulation of the leg.

INCIDENCE OF THROMBOSIS

One discouraging feature of many reports on surgery for femoral arteriosclerosis has been the high incidence of late thrombosis. In the past three years we have carried out 38 by-pass grafts for segmental femoral arteriosclerosis.[3] There were 7 acute failures, most of them predictable due to inadequate run-off. Of 31 patients who left the hospital with patent grafts, only 4 (12.8 percent) have become occluded from four to eighteen months after insertion. It is felt that progression of atherosclerosis in small vessels is the cause of late thrombosis and a certain percent of these grafts will occlude until a method of halting the progress of atherogenesis is found. This relatively low incidence of occlusion of nylon and teflon grafts has been encouraging, 4 grafts have functioned over two years and 17 longer than a year.

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THE EARLY DETECTION AND TREATMENT OF BRONCHOGENIC CARCINOMA *

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It has now been a quarter of a century since Graham [1] performed the first successful pneumonectomy for bronchogenic carcinoma in 1933. The bright promise of this brilliant achievement both for resectability and long term survival has not been realized in the majority of patients having this disease. In our † series of 1180 patients operability rates have remained remarkably stationary over a period of years (Fig. 1). Half of the patients had lesions which were inoperable when first seen, and another 15 per cent were found to be nonresectable at the time exploratory thoracotomy was done. One third of the patients had resectable lesions, and in only a small percentage of these were their carcinomas sufficiently early or well localized to permit long term survival. The increasing frequency of bronchogenic carcinoma and the results of surgical treatment make it evident that surgical removal is not the answer to the problem in all patients and emphasizes the need for a careful selection of patients for surgery based on detection of biologically favorable lesions during an early localized stage.

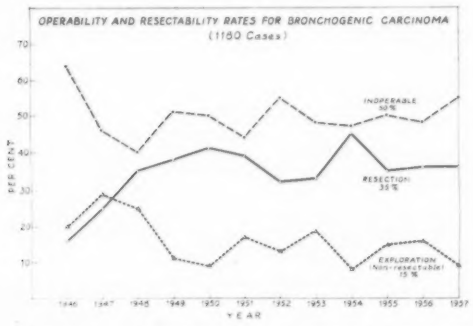


Figure 1. Operability and resectability rates for 1180 cases of bronchogenic carcinoma seen 1946-1957. The operability rate of 50 per cent and the resectability rate of about 35 per cent remain remarkably stationary.

The early detection and treatment of bronchogenic carcinoma depends on clear definition of the factors determining the spread of cancer and its prognosis. Two antithetic theories of explanation exist at the present time. The first of these, *the classical temporal theory*, emphasizes the function of time and states that a cancer begins as a localized disease, grows in a steady and irrevocable manner, spreads to the regional lymph nodes in time and with the passage of more time disseminates throughout the body. The second and more modern theory of biologic *predeterminism* states that the behavior of a neoplasm in an individual host is an expression of a biologic potential established in its inductive phase. Its characteristics are established in the preclinical phase and remain more or less constant throughout its life, although it may undergo intermittent periods of growth and quiescence. Cognizance of the respective merits of each theory forms the foundation for the rationale of treatment of bronchogenic carcinoma.

CLASSICAL TEMPORAL THEORY

The classical temporal theory has been generally accepted by surgeons and forms the logical basis for the traditional radical approach to carcinoma. It has been widely promulgated, both within the profession and to the lay public, that the prognosis in cancer can be altered by early and wide excision of the neoplasm together with the regional lymph bearing area. This has occurred in spite of evidence to the contrary that it is often impossible to correlate better end results with early treatment from the standpoint of time alone. In this concept the existing methods of diagnosis and treatment of cancer are considered adequate, and responsibility for any delay in detection is placed

* Presented at the Seventy-eighth Annual Meeting of the Louisiana State Medical Society, Shreveport, May 6, 1958.

† The combined experience of Drs. Robert R. Shaw, John L. Kee and the author.

alike on the physician and the individual concerned. The surgeon is often absolved of the consequences of failures of therapy on the basis that the patients arrived too late to obtain a good result. This is generally accepted in spite of the opposing evidence that some of the long term survivors are those with the longest history of their disease who arrived late for treatment.

Husfeldt [2] has found in Denmark that the operability rate for bronchogenic carcinoma is practically the same for those who come in early and those who arrive late for treatment. He explains this apparent paradox to the doctrine of the temporal theory on the basis that the more rapidly growing carcinomas produce progressive symptoms in a shorter period of time but are frequently inoperable. On the other hand the more slowly growing tumors are accompanied by less pronounced symptoms but may still be operable when the patient finally presents himself for treatment late.

Because it is reasonable to assume on the basis of circumstantial evidence that early detection and treatment may prolong survival time in some individual patients, it is often disregarded that to diagnose a cancer earlier is to increase survival time by a similar period even without treatment (Fig. 2). Rigler [3] has shown in a retrospective study of roentgenograms of the chest of patients with bronchogenic carcinoma that in over half of the hundred patients followed by this means, their lesions were found to antedate either symptoms or diagnosis by two years or more and as long as fourteen years. The average survival time after institution of therapy was only nine months; whereas before this they had lived with their cancers for years. Earlier diagnosis would have resulted in a proportionately longer survival time after the diagnosis was made regardless of treatment.

THEORY OF BIOLOGIC PREDETERMINISM

The theory of biologic predeterminism

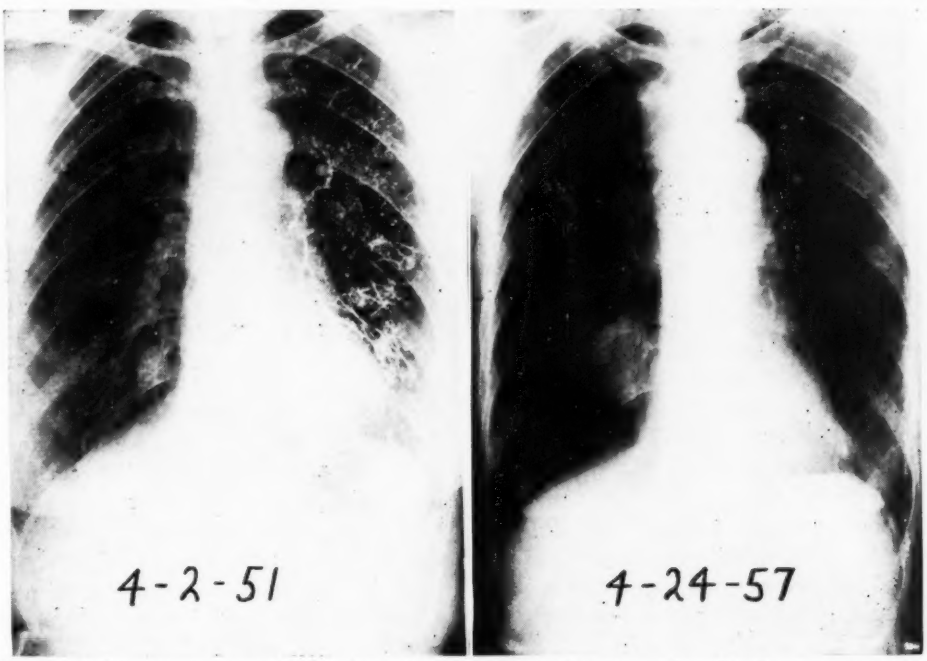


Figure 2. Roentgenograms of the chest six years apart of a woman found to have a proven inoperable carcinoma of the middle lobe with mediastinal node involvement in 1957. The patient has survived seven years without treatment. Earlier diagnosis would have resulted in survival for a similar period regardless of treatment.

enunciated by Ian MacDonald [4] and supported by Crile [5] is a tenable concept which explains the course and prognosis of cancer on the basis of the biologic characteristics involved. The cell type, the location, and the resistance of the host largely determine the pattern of behavior and prognosis, and the factor of time becomes less important as a consequence only of the biologic traits of the particular neoplasm involved.

Application of the theory of biologic predeterminism to bronchogenic carcinoma explains the variegated pattern of behavior and prognosis in this neoplasm and places the rationale of treatment on a logical basis. We have found [6] that in 25 per cent of our patients with bronchogenic carcinoma the initial complaint which prompted the patient to seek medical advice was one indicating inoperability: such as headache due to cerebral metastases, loss of voice due to involvement of the recurrent laryngeal nerve, pain due to involvement of the brachial plexus, venous distention due to involvement of the mediastinum, painless pleural effusion, dysphagia due to involvement of the esophagus, involvement of such distant organs as bone and peritoneum, or subcutaneous metastases due to generalized dissemination of cancer. The occult nature of the primary lesion, the insidious onset, the paucity of symptoms, and the rapid growth with early progression to metastasis in this group make the diagnosis and treatment impossible to attain during an early localized stage. About 20 per cent of our patients have an undifferentiated carcinoma, widely recognized for its rapid dissemination and considered by many as a sign of inoperability in itself. If the 25 per cent of patients in whom the initial complaint indicated inoperability are added to the 20 per cent who have undifferentiated carcinomas and allowance is made for overlapping of the two groups, we estimate that roughly 35 per cent of the patients having bronchogenic carcinoma will have the type of tumor and lack of resistance to predetermine inoperability biologically. The function of time is not important in this group. By contrast, low grade epidermoid carcinomas may remain well localized for long periods of time, produce less pronounced symptoms over several years, and yield long periods of survival after resection is finally done. These lesions are late in point of view of time but favorable from the standpoint of biologic characteristics and localization. Many of the patients who survive for long terms following resection are in this group with histories extending over several years.

A cancer may be early biologically but late chronologically. The observation that a particular lesion such as a pulmonary nodule, is symptomless may give the impression that it is an early lesion in point of view of time but this may or may not be true. (Fig. 3) The fact that it may remain localized and symptomless for a long period of time, in some cases for years, is a direct expression of its biologic character. The amount of time required for its eventual growth peripherally or centrally to produce symptoms or involve lymph nodes depends on its cell type, the resistance of the host, and its original location. Time is but a consequence of these factors. The term *early* applies more to the degree of localization rather than to its temporal aspects.

Emphasis of the biologic factors in bronchogenic carcinoma does not preclude attention to the temporal factor. In its proper perspective, time is of great importance in the early detection of the biologically more favorable types of bronchogenic carcinoma, particularly those presenting as a pulmonary nodule during the asymptomatic phase and the early, well localized, low grade hilar lesions. The challenge today is to learn more about the biologic characteristics of the various types of bronchogenic carcinoma so that we will know which lesions can be diagnosed in an early localized stage and therefore are suitable for surgery, which will be benefited by radical resections, and which may be treated by more conserva-

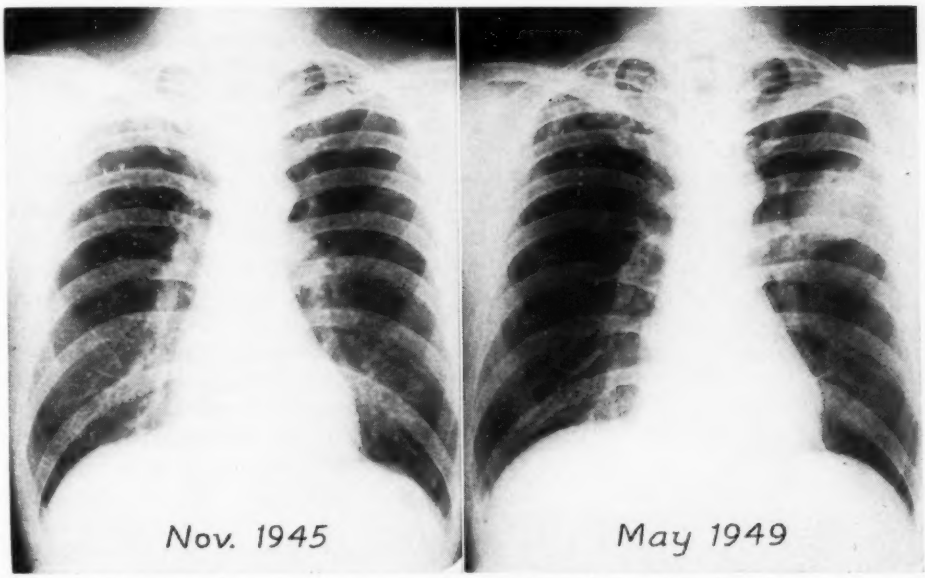


Figure 3. Bronchogenic carcinoma removed by lobectomy May 1949, after hemoptysis occurred. Previous roentgenogram of the chest, in November 1945, revealed a nodule in the same location. This cancer was early biologically but late chronologically. The patient has survived nine years after lobectomy and over twelve years after the earliest evidence of the lesion, demonstrating its favorable biological character.

tive resections, as lobectomy, without sacrifice of survival time but with the attendant advantages of a lower mortality rate and a better quality of survival.

PULMONARY NODULE

The most favorable location from the standpoint of early detection, resection, and prognosis is the bronchogenic carcinoma presenting as a pulmonary nodule. In our series of 102 patients with lesions in this location, 82 patients or 80 per cent were operable and all but one of these were resectable (Table 1). There was 1 operative mortality as a result of 9 segmental resections, 62 lobectomies, and 10 pneumonectomies.

The survival rates for two years or more following resection of 81 bronchogenic carcinomas presenting as a pulmonary nodule were 45 per cent for the entire group (Table 2) and 70 per cent for those that were asymptomatic (Table 3). These results compare very favorably with an overall resectability rate of 35 per cent for all types of bronchogenic carcinoma and a survival rate of 35 per cent for all resections at two years.

The bronchogenic carcinoma presenting as a pulmonary nodule is readily detected by routine roentgenograms of the chest. By definition it is roughly spherical, of soft density but may contain calcium, and

TABLE 1.
OPERABILITY AND RESECTABILITY RATES FOR 102 PULMONARY NODULES DUE TO BRONCHOGENIC CARCINOMA. EIGHTY PER CENT WERE OPERABLE AND RESECTABLE

Status		No. Cases
Inoperable		20
Distant metastases	15	
Poor pulmonary function	4	
Refused surgery	1	
Operable—With Evidence of Node Involvement		21
Lobectomy	14	
Pneumonectomy	6	
Exploration	1	
Operable—Without Evidence of Node Involvement		61
Segmental Lobectomy	9	
Lobectomy	48	
Pneumonectomy	4	
Total		102

One death following lobectomy due to cardiac arrest (1.2%)
Shaw, Paulson and Kee 1945-57

TABLE 2.
SURVIVAL RATES FOR ALL PATIENTS WHO HAD RESECTABLE PULMONARY NODULES DUE TO BRONCHOGENIC CARCINOMA

Period Since Resection	Number of Resections	Number Alive	Percent Surviving
Less than 1 year	16	11	73
1 year	17	13	
2 years	12	6	45
3 years	17	5	
4 years	4	3	
5 years	15	9	
Total	81	47	

(Five deaths were due to causes other than bronchogenic carcinoma.)
Shaw, Paulson and Kee 1945-57

TABLE 3.
SURVIVAL FOLLOWING RESECTION FOR 35 ASYMPTOMATIC PULMONARY NODULES DUE TO BRONCHOGENIC CARCINOMA

Period Since Resection	Number of Resections	Number Alive	Percent Surviving
Less than 1 year	7	6	80
1 year	8	6	
2 years	4	4	70
3 years	6	2	
4 years	3	3	
5 years or more	8	6	
Total	36	27	

(Three deaths were due to causes other than carcinoma.)
Shaw, Paulson and Kee 1945-57

is surrounded by lung tissue on all sides (Fig. 4). It is often not sharply circumscribed, and its border may be notched or nodular. Because of its location in the contrasting lung parenchyma, its roentgenographic shadow may be readily detected during a symptomless phase and of a size as small as a few millimeters in diameter.

The mere presence of a pulmonary nodule like a nodule in the breast is an indication for surgical removal in the interests of diagnosis and treatment in 80 per cent of patients seen with this lesion.[7] One in three of these patients have a nodule due to bronchogenic carcinoma, and the incidence of carcinoma increases in direct proportion with the patient's age. The finding of a solitary pulmonary nodule in the presence of a known primary lesion in another organ does not constitute presumptive evidence that the lesion in the lung is metastatic. In many of such patients the solitary pulmonary lesion is a separate primary carcinoma of the lung.[8]

Lobectomy or segmental resection are

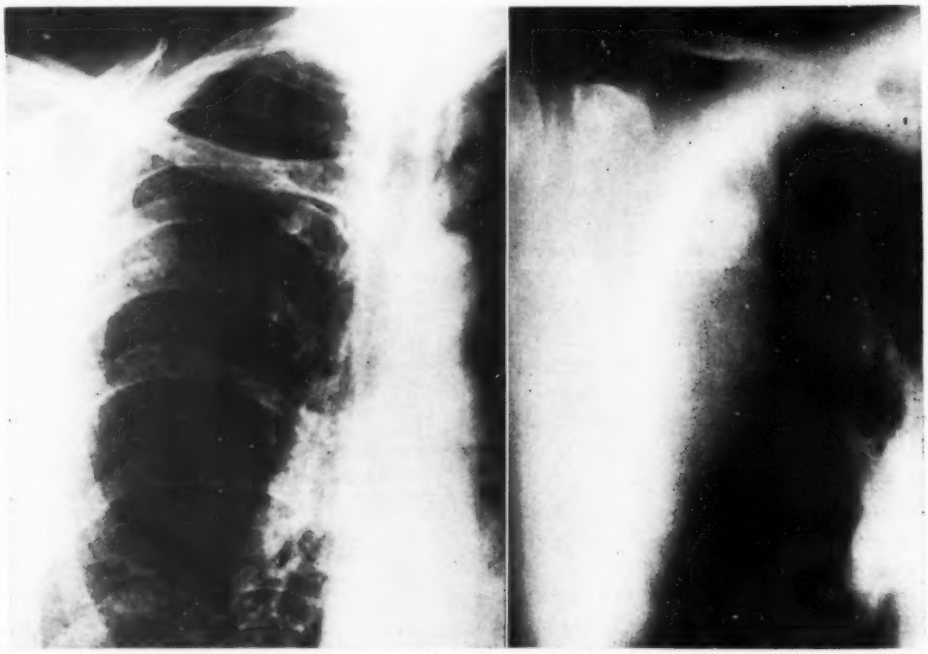


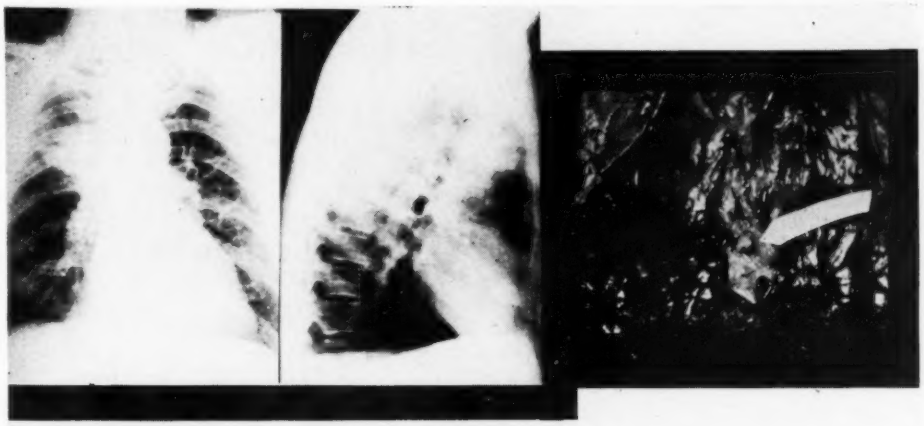
Figure 4. Pulmonary nodule right upper lobe due to bronchogenic carcinoma. Five years survival followed lobectomy.

adequate operations for most pulmonary nodules due to bronchogenic carcinoma. Pneumonectomy is justifiable only if gross lymph node involvement is present.

LOCALIZED LOW GRADE HILAR LESIONS

Localized low grade hilar lesions usually suspected because of symptoms of pneumonitis or hemoptysis may be detected early by the alert clinician by means of roentgenography. Ordinary roentgenograms of the chest or planigrams often readily demonstrate the small shadow of increased density in or near a lobar or segmental bronchus together with a segmental or lobar obstructive pneumonitis (Fig. 5 and 6). Bronchoscopic examination, because of the location of these lesions, is highly productive of confirmatory evidence either by biopsy or cytologic studies of bronchial secretions.

Because the low grade hilar lesions do not metastasize until late and are slowly invasive, lobectomy or lobectomy in combination with a sleeve resection of the main bronchus and bronchial anastomosis [9] often constitutes an adequate operation for this particular type of cancer of the lung. Insistence on the radical procedure of pneumonectomy for this type of lesion is unrealistic in ignoring the biologic character of this particular lesion and the practical considerations of func-



First episode of pneumonitis in a 59 year old man. Study of secretions obtained at bronchoscopy showed atypical cells. Right upper lobectomy. Surgical specimen shows small intraluminal carcinoma in the orifice of the anterior segmental bronchus.

Figure 5. Early, low grade hilar carcinoma, 4 millimeters in size, located in the anterior segmental bronchus of the right upper lobe producing segmental obstructive pneumonitis. Removed by lobectomy two weeks after the onset of the pneumonitis.

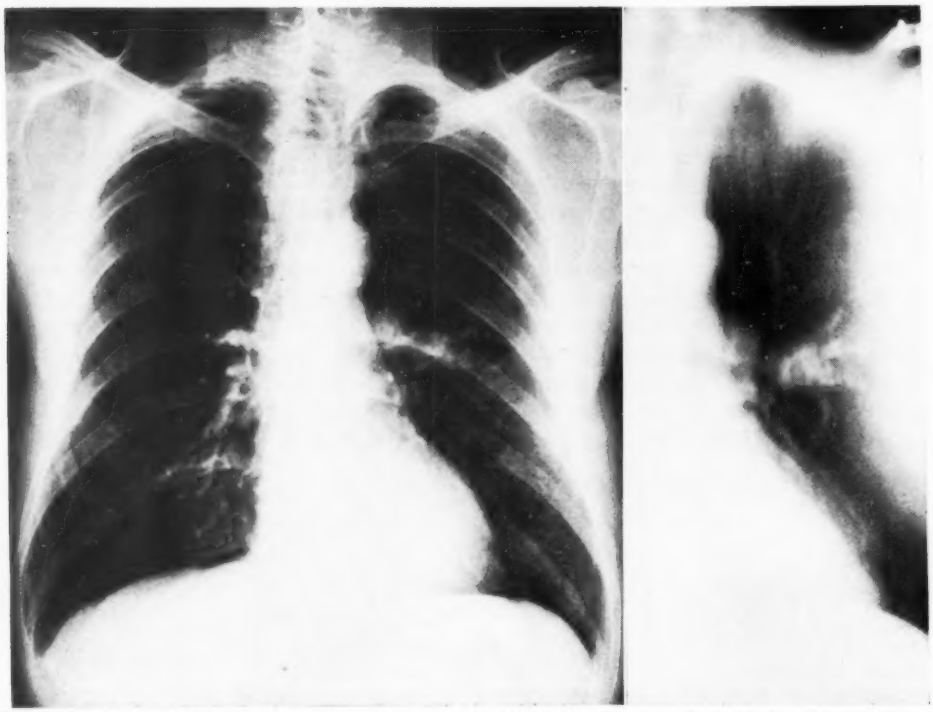


Figure 6. Early, low grade, hilar carcinoma, 5 millimeters in size, located in the anterior segmental bronchus of the left upper lobe producing hemoptysis. Planigrams reveal the carcinoma.

tion of the lung. Survival rates alone are not the only measure of therapeutic effectiveness. The differences in mortality between the radical and conservative approaches and the quality of survival are equally important gauges of therapeutic efficiency. There is a great difference between the patient who survives but is disabled and the one who lives for a similar period of time and is able to continue with normal or near normal activity.

In the interests of preservation of lung tissue we have utilized bronchial resection and anastomosis combined with lobectomy deliberately as an adequate operation for low grade, localized hilar carcinomas in 10 patients and as a compromise with inadequate respiratory reserve in 7 patients (Fig. 7). Although the number of cases is small, the results warrant continued application of the procedure. Fourteen of 16 patients eligible, or 88 per cent, survived one year, and 11 of 14 patients eligible or 80 per cent survived two years.

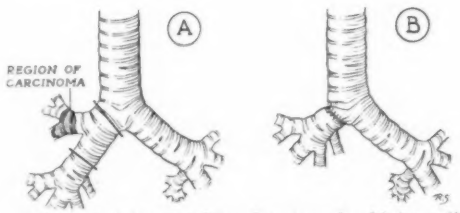

A
B
REGION OF CARCINOMA
Resection right upper lobe and right main bronchus
Anastomosis of intermediary bronchus to stump of right main bronchus

Figure 7. Diagrammatic illustration of combined right upper lobe lobectomy, sleeve resection of right main bronchus and anastomosis of the intermediary bronchus to the trachea for a localized carcinoma in the right upper lobe bronchus.

The corresponding percentages of survival of all our patients having resections were 54 per cent for one year and 35 per cent for two years. These results are consistent with the biologic characteristics of the lesion treated.

SUMMARY

1. Improvement in survival rates following resection for bronchogenic carcinoma depends on a better selection of pa-

tients for surgery based on detection of biologically favorable lesions during an early localized stage.

2. A particular lesion may be early biologically but late chronologically. The term *early* applies more to the degree of localization rather than to its temporal aspects. Early detection is possible only for the biologically favorable lesions.

3. In its proper perspective, time is of great importance in the early detection of the biologically more favorable types of bronchogenic carcinoma, particularly those presenting as a pulmonary nodule and the early, well localized, low grade hilar lesions.

4. Adequate treatment of the early lesion can be accomplished by means of the conservative resection of partial or complete lobectomy with a better quality of survival and a lower mortality rate than are possible with pneumonectomy. Combination of lobectomy with sleeve resection of a main bronchus and bronchial anastomosis constitutes an adequate resection for some low grade hilar lesions.

5. Results of resection of the early bronchogenic carcinoma indicate very favorable survival rates, as high as 70 per cent for two years or more for the pulmonary nodules and the localized hilar lesions.

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The Journal of the Louisiana State Medical Society

Established 1844

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News material for publication should be received not later than the eighteenth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.

Manuscripts should be addressed to the Editor, 1430 Tulane Ave., New Orleans, La.

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OFFICERS OF THE LOUISIANA STATE MEDICAL SOCIETY FOR THE COMING YEAR

The House of Delegates of the Louisiana State Medical Society, at the Seventy-eighth Annual Meeting in Shreveport, in May, elected officers for the coming year of whom the Society may well be proud. They are physicians worthy of the lofty responsibilities and decisions that will come before them. Our Society has a long history of having the men they put into office meet their responsibiilties creditably and perform their duties faithfully.

Dr. Arthur D. Long of Baton Rouge was installed as president. He comes to the position of chief executive of the Society with a supporting experience and much successful achievement in its affairs. He has for years been a respected leader in his society, in the Council, and on many committees. He has been a Councilor in name and fact. His induction into office is accompanied by a feeling of confidence and security that the difficult decisions and grave responsibilities of the Society will be in competent hands.

The President Elect is Dr. W. Robyn Hardy of New Orleans, whom the membership knows well and esteems highly. His years of chairmanship of the House of Delegates and of the Council of Public Relations have provided him with valuable experience and opportunity to show his talents, his ability, and sound judgment.

The first Vice President is Dr. O. B. Owens of Alexandria, who has been Vice Chairman of the House of Delegates, and who has served effectively on many of the most important committees in our organization. He has been honored and respected for his vast knowledge of organizational detail and for his conscientious devotion to his assignments.

The second Vice President, Dr. Boni J. DeLaureal of New Orleans has been long active in the Orleans Parish Medical Society and served as its President and as chairman of committees most capably.

The third Vice President is Dr. James Eddy, Jr., of Shreveport, who was general chairman of the Society's last convention there, and who was responsible for the meticulous details of one of our most pleasant and satisfactory meetings. He will be a welcome addition to the activities of the Executive Committee.

Dr. C. Grenes Cole continues as Secretary-Treasurer, which office he has discharged with singular capability and effectiveness over a period of years. For this office he has a background of sound judgment and experience in organizational affairs seldom seen in any state medical society. The maintenance of our professional position and the progress the Society has

made in years past have been contributed in no small part by the support he has given the officers of the Society and his wise counsel in times when it was needed.

Newly elected to the Council was Dr. Henson S. Coon of Monroe, representing the 5th District. Dr. Coon is a welcome addition who brings to this important body a wealth of experience and a noteworthy record of conscientious performance for his local society.

Dr. Charles B. Odom of New Orleans was named Chairman of the House of Delegates. The Society is happy to have in this position a physician who has had valuable experience in many activities that pertain to medicine, and who has been a stimulating and enthusiastic executive as President of the Orleans Parish Medical Society.

Dr. H. H. Hardy of Alexandria moves to the position of Vice Chairman of the House of Delegates and will continue to render valuable assistance in this situation. As a member of the Council he has served most capably and much to the advantage of the Society over a period of years.

The organizational activities of the Louisiana State Medical Society are vital in maintaining our professional position to a degree that can scarcely be appreciated by those who have not participated. The responsible public looks to the medical profession for guidance in the matters of personal and public health. It is only by maintaining the proper formal and legal relationships to society as a whole that we are able to properly discharge these obligations, and in turn, the effectiveness of our organization depends upon its chosen leaders. The profession can count itself fortunate in the leadership it has selected and supported.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

PRESIDENT'S COUNCIL ON YOUTH FITNESS

The following suggestions to the President, and local Medical Society, have been received from the President's Council on Youth Fitness:

Fitness of individuals has long been among the cherished ideals of the members of the medical profession. Whatever the term by which we call it—fitness, health, well-being—it adds up to "an individual, young or old, prepared to meet the exigencies of present living."

Interest in this thing called **fitness** is not new to physicians. Long have we been deeply concerned with the protection and preparation of the youth of America, for the youth of today are the adults of tomorrow. "The early proceedings of the House of Delegates of the American Medical Association have shown an interest in the fitness of American youth since the Association's organization in 1847." Public health physicians have had an abiding interest and concern for the health protection of youth (as well as adults) since public health medicine was instituted by local government. Even Plato, over two thousand years ago, said, "For the first ten years of life, education shall be predominantly physical; every school is to have a playground; play and sport are to be the entire curriculum; **and, in this decade such health** will be stored up as will make all medicine unneccessary."

Following a conference, to which were invited approximately one hundred fifty participants, among whom were physicians, dentists, public health personnel, educators, coaches, athletes; representatives of organizations interested in amateur and professional sports, and mass publicity media; and persons interested in recreation, camping, the outdoors, and the general areas of youth fitness, a President's Council on Youth Fitness was established. It consists of five Cabinet members: Secretaries of the Interior; Labor; Agriculture; Defense; and Health, Education, and Welfare. Vice President Nixon was first Chairman, but relinquished this post because of pressure of other official duties. Secretary of the Interior, Fred A. Seaton, was made Chairman of the Council. Mr. Shane MacCarthy has been its Executive Secretary since the outset.

Under such auspicious leadership, the American Medical Association was stimulated to renewed interest and vigor in the effort to improve the fitness of American youth. It is an opportunity and challenge to the medical profession.

"Fitness, according to the medical concept, must be based on essential fundamentals of which

the first is good physical and emotional health," states an Editorial in the **"Journal of the American Medical Association."**

"To achieve this end," continues the editorial, "we must have good nutrition, periodic evaluation of health needs, intelligent attention to healthful living at home and in the school, adequate recreation and activity, the development of personal sports, and emotional adjustment to circumstances as they arise. . ."

The opportunity and the challenge to the medical profession is to let its voice be heard and establish the clear and unequivocal position of medicine and public health as to the fitness of American youth. What that policy should be is aptly stated in the editorial mentioned above, "Medicine stands for a broad concept of fitness, as indicated . . . Medicine does not discourage activity, sports, competition, or even a reasonable risk of injury. Medicine recognizes that a fractured ankle may leave less of a scar than a personality frustrated by reason of parental timidity over participation in contact sports. Medicine does recognize, however, that there are contact sports which have for their main purpose, rather than competition and victory, injury to the opponent. Medicine recognizes also that there are contact sports and degrees of competition which are too severe for the immature. In standing out against the abuse of highly desirable exercise and highly necessary competition, medicine in no way objects to activity, competition, and risk, in its proper place. All life is a risk and without courage, life is not worth living."

Many members of the medical profession have given unstintingly of their time and services in countless communities to the cause of youth fitness. The medical profession is ably represented on the President's Citizens Advisory Committee on the Fitness of American Youth. As always, the medical profession may be counted upon to give its wholehearted support and cooperation to worthy projects. The broad program for fitness of American youth as espoused by the President's Council on Youth Fitness is a project of that nature.

"State and local medical societies have an opportunity and an obligation to make known to their communities their interest and willingness to participate in community action toward the greater fitness of American youth."

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MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Ascension	Third Tuesday of every month	
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Tuesday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Indepencence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

TWENTY-SECOND ANNUAL MEETING THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

The twenty-second annual meeting of The New Orleans Graduate Medical Assembly will be held March 2-5, 1959, headquarters at the Roosevelt Hotel.

The following officers and members of the Executive Committee have been elected for this year:

Dr. J. O. Weilbaecher, Jr., President
Dr. Ambrose H. Storck, President-elect
Dr. V. Medd Henington, First Vice-President
Dr. W. E. Kittredge, Second Vice-President
Dr. Ralph M. Hartwell, Third Vice-President
Dr. M. E. St. Martin, Secretary
Dr. Boni J. DeLaureal, Treasurer
Dr. Robert F. Sharp, Director of Program
Dr. L. Sidney Charbonnet, Jr., Assistant Director of Program
Dr. Mannie D. Paine, Jr., Assistant Director of Program

Members of the Executive Committee include Drs. Charles L. Brown (retiring President), Hugh T. Beacham, H. Theo Brierre, Max M. Hattaway and George H. Hauser.

RADIOLOGICAL SOCIETY ELECTS NEW OFFICERS

In May 1958, the Radiological Society of Louisiana held its annual meeting, and the following officers were elected: J. T. Brierre, M. D., President; Jerome J. Romagosa, M. D., Vice-president, and Seymour Ochsner, M. D., Secretary-Treasurer.

ADMINISTRATIVE APPOINTMENTS AT TULANE

Dr. Clifford G. Grulee, assistant dean, became associate dean of Tulane Medical School effective July 1, and Dr. Harold Cummins, who has been both chairman of the department of anatomy and assistant dean, has become assistant dean of medical school admissions, working cooperatively with other divisions of the University in medical alumni relations and development.

Dr. John C. S. Paterson, associate professor of medicine, is now chairman of the department of tropical medicine and public health. Dr. Paterson is a native of Scotland and received the degrees of M.B. and Ch.B. from the University of St. Andrews. In 1947 he became a Member of the Royal College of Physicians, London. He came to the United States in 1949 to attend the University of Rochester in New York under a Commonwealth Fund Fellowship. He then returned to the University of London as tutor in medicine until he joined the faculty of the department of medicine at Tulane in 1953. Dr. Paterson was awarded the M.D. degree with commendation in 1956 for his thesis on diurnal variations in the metabolism of iron. He has done research work in sickle cell disease, metabolism of iron, cerebral circulation and epidemiology of leukemia. Dr. Paterson's wife, Dr. Ruth Paterson, assistant professor of neurology at Tulane, is also a member of the Royal College of Physicians, London.

AMERICAN COLLEGE OF OBSTETRICIANS AND GYNECOLOGISTS

A meeting of District VII, American College of Obstetricians and Gynecologists, will be held in Jackson, Mississippi, September 12 and 13, 1958.

The program will be held at the King Edward Hotel, beginning with a fellowship hour on Thursday evening, September 11. There will be a scientific program of papers, round tables, and movies on September 12 and 13. Plans are also being made for the ladies' entertainment.

UROLOGY AWARD

The American Urological Association offers an annual reward of $1000 (first prize of $500, second prize $300 and third prize $200) for essays on the result of some clinical or laboratory research in Urology. Competition is limited to urologists who have been graduated not more than ten years, and to hospital internes and residents doing research work in Urology.

The first prize essay will appear on the program of the forthcoming meeting of the American Urological Association, to be held at the Chalfonte-Haddon Hall, Atlantic City, New Jersey, April 20-23, 1959.

For full particulars write the Executive Secretary, William P. Didusch, 1120 North Charles Street, Baltimore, Maryland. Essays must be in his hands before December 1, 1958.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

Applications for certification (American Board of Obstetrics and Gynecology), new and reopened, Part I, and requests for re-examination Part II are now being accepted. All candidates are urged to make such application at the earliest possible date. Deadline date for receipt of applications is September 1, 1958. No applications can be accepted after that date. It should be noted by prospective candidates that the deadline date will be August 1, in 1959.

Candidates are requested to write to the office of the Secretary for a current Bulletin if they have not done so in order that they might be well informed as to the present requirements. Application fees ($35.00), photographs, and lists of hospital admissions must accompany all applications.

Robert L. Faulkner, M. D.
2105 Adelbert Road
Cleveland 6, Ohio

THE MARCIA C. NOYES AWARD 1958

William D. Postell, Librarian and Professor of Medical Bibliography, Louisiana State University School of Medicine, New Orleans, has been honored by the receipt of the Marcia C. Noyes Award for outstanding achievement in medical librarianship. The Award was presented to Mr. Postell at the banquet of the Medical Library Association's 57th Annual Meeting at Rochester, Minnesota, June 5, 1958. The Award consisted of a Gorham silver Chippendale 10 inch tray, on which the seal of the Association is engraved.

Previous recipients of the Noyes Award have been: Eileen R. Cunningham, Nashville, Tenn.; James F. Ballard (deceased), Boston, Mass.; Mary Louise Marshall, New Orleans, La.; Janet Doe, New York City; Col. Harold W. Jones (deceased), Washington, D. C.

Mr. Postell has made significant contributions to advance medical library work both at home and abroad. In 1955, the International Cooperation Administration of the Secretary of State's office sought his assistance in organizing a library for the College of Medicine of the National Taiwan University of Taipei, Formosa. He not only did a good job in helping them with their library but proved a fine ambassador as attested by the re-

sponse. Mr. Postell's deeds of service in our own country are countless and in spite of a full schedule, he is never too busy to help with any problem on which he might be approached for advice or assistance. His experience in planning L.S.U.'s medical library made him a valuable consultant when the Houston Medical Center Library was built, and he made an additional contribution in conducting the refresher course on Architecture for members attending the 1958 Medical Library Association Meeting. He was invited by the school authorities of the University of Pittsburgh to assist in planning their medical library program, and he has helped with advice and guidance in many other instances.

In advancing standards of library service, Mr. Postell should be cited for his many helpful contributions to the literature. An exceptionally useful tool for teaching and reference is bis hook, **Applied Medical Bibliography for Students** (1954). Other books and articles indicate that his "precepts of medical librarianship" constitute a credo, which when put to a test strengthen the status of the profession and its contribution to scientific progress.

When one considers the scope of the Medical Library Association's fine program and its tremendous influence in unifying and strengthening medical libraries the world over, special tribute seems due to those who have charted its course and who have directed or participated in its innumerable activities. Bill Postell has made tangible contributions to the Association's work and has served it in many capacities: as president in 1952-53, and at varying times as member of the Board of Directors, as editor of the **Bulletin**, and on numerous important committees. A special satisfaction comes with the privilege of honoring such a colleague while he is still striving and has not yet reached his peak of accomplishments. Measured by the past, the future should be a rewarding one.

E. Louise Williams
Chairman, Awards Committee
Medical Library Association

SOCIAL SECURITY

Social Security Says: "There is no provision in the law which permits a refund of social security taxes paid if you do not have enough work under the law to get social security payments."

In other words: Your uncollectable "contribution" goes to charity, and not "insurance."

Social Security Says: "A woman who becomes entitled to benefits based on her own earnings and also the wife's benefits on the earnings of her husband would receive no more than the larger of the two amounts. A child who becomes entitled to child's benefits based on earnings of both his father and mother would not receive both payments."

In other words: Double social security taxes paid by one family do not produce benefits for each member paying the taxes. A part of the taxes go to "charity."

ANNUAL ASSEMBLY IN OTOLARYNGOLOGY

The Department of Otolaryngology, University of Illinois College of Medicine, announces its Annual Assembly in Otolaryngology from September 29 through October 5, 1958. The Assembly will consist of an intensive series of lectures and panels concerning advancements in otolaryngology, and evening sessions devoted to surgical anatomy of the head and neck and histopathology of the ear, nose and throat.

Interested physicians should write direct to the Department of Otolaryngology, 1853 West Polk Street, Chicago 12, Illinois.

A.M.A. SUPPORTS LEGISLATION FOR HANDLING AVIATION MEDICINE

The American Medical Association recently announced its active support of legislation pending before Congress which would establish a separate medical office within the Civil Aeronautics Administration.

In a letter to Sen. Warren G. Magnuson, chairman of the committee on interstate and foreign commerce, Dr. F. J. L. Blasingame, A.M.A. general manager, said, "The American Medical Association is seriously concerned with the present state of civil aviation insofar as medical matters are concerned."

He continued, "Increasing air traffic and the jet age, accompanied by increased physical demand on pilots, require a substantial revision in the present method of handling many aspects of aviation medicine."

Specifically, the A.M.A. is urging passage of Senate Bill 1045 which is before Senator Magnuson's committee.

Dr. Blasingame pointed out that the A.M.A. now has a permanent committee on aviation medicine, and that the association's support of the bill is based on the recommendations of that committee.

SECOND OKLAHOMA COLLOQUY ON ADVANCES IN MEDICINE

The Second Oklahoma Colloquy on Advances in Medicine will be held on November 12, 13, 14 and 15. It will be devoted to Arthritis and Related Disorders and is under the joint sponsorship of the Department of Medicine, University of Oklahoma, the Division of Postgraduate Education, Geigy Pharmaceuticals, Wyeth Laboratories, The Upjohn Company, Pfizer Laboratories, and Schering Corporation.

Twelve nationally prominent investigators in their field will participate and present the results of original work from their laboratories. Among the guest speakers will be:

Alfred Jay Bollet, M. D., Assistant Professor of Medicine, Wayne University College of Medicine, Detroit, Michigan.

R. H. Follis, Jr., M. D., Armed Forces Institute of Pathology, Walter Reed Army Medical Center, Washington, D. C.

Robert A. Good, M. D., American Legion Memorial Heart Research Professor of Pediatrics, University of Minnesota, Minneapolis.

Alexander B. Gutman, M. D., Director, Department of Medicine, The Mount Sinai Hospital, New York.

Ralph Heimer, Ph.D., Department of Rheumatology, Hospital for Special Surgery, New York.

C. H. Slocumb, M. D., Mayo Clinic, Rochester, Minnesota.

John H. Talbott, M. D., Professor of Medicine, University of Buffalo School of Medicine, Buffalo, New York.

Morris Ziff, M. D., Associate Professor of Medicine, New York University College of Medicine, New York.

On November 15 the University of Oklahoma football team will play the University of Missouri at Norman, Oklahoma. Registrants may apply for tickets by writing the Athletic Ticket Office, University of Oklahoma, Norman, Oklahoma.

Registration will be open to all physicians. Further information may be obtained by writing to the Division of Postgraduate Education, University of Oklahoma School of Medicine, Oklahoma City, Oklahoma.

DRUGS FOUND EFFECTIVE AGAINST RESISTANT STAPHYLOCOCCI

Hospitals are faced with the difficult problem of dealing with serious staphyloccal infections—due to increasing resistance of the organisms to antibiotics as well as the failure to employ rigid aseptic technics and to the growing numbers of patients susceptible to these infections.

To help provide a rationale for the selection of drugs to combat staph infections, Dr. Burton A. Waisbren, Assistant Clinical Professor of Medicine at Marquette University School of Medicine, has conducted a definitive five-year study of the effectiveness of 13 antibacterial agents against 500 strains of staphylococci at the Milwaukee County General Hospital.

Only two drugs—the antibiotic, neomycin, and nitrofurantoin (Furadantin®, Eaton) were effective against more than 90 per cent of the various staph strains. The figure for neomycin was 96 per cent and for Furadantin, 95 per cent, Effectiveness of other antibiotics ranged from 89 per cent for vancomycin to 25 per cent for penicillin. The broad spectrum antibiotics like chlortetracycline, oxytetracycline, streptomycin and the tetracyclines were all less than 50 per cent effective.

POISON IVY PROTECTION

Nature lovers and outdoor workers need no longer fear poison ivy or poison oak. The centuries-old battle against these plants has been won by a woman chemist, and her new-type, harmless and painless method of immunization is now being made commercially available on a nationwide scale for the first time. The product, called Aqua Ivy, was perfected by Miss Margaret Strauss, director of the allergy laboratory at University Hospital, New York University—Bellevue Medical Center. It has been thoroughly tested for ten years by a group of physicians using it on more than 1,000 patients. Highly satisfactory results have been reported in a series of articles in medical journals, and no side effect has ever resulted.

National distribution of Aqua Ivy has just been started by the Allergens Division of Chemical Specialties Co., Inc., Charles Szechenyi, president announced. It will be distributed throughout America and in southeastern Canada where the poisonous plants flourish.

Clinical tests have proved Aqua Ivy to be effective on 93% of those using it and without side effects because of the new way in which it is made. This was shown in a careful study perpared by Dr. Richard E. Passenger of Newburgh, N. Y., with 121 patients and reported in the "Journal of Allergy" (September, 1956).

"SILENT" MYOCARDIAL INFARCTION RATES HIGHER THAN EXPECTED

The number of unsuspected healed myocardial infarctions, a type of heart attack, found in a recent study of 5,000 autopsy reports was "astonishing," two Michigan doctors said.

Analysis of 5,000 consecutive autopsies performed at the Wayne County General Hospital, Eloise, Mich., between 1945 and 1955 showed 588 myocardial infarctions of which 175 had been unsuspected.

Drs. S. E. Gould and L. P. Cawley, Eloise, said "It is astonishing that the incidence of old healed 'silent' infarcts should be as high as 3.5 per cent of all autopsies. This represents 30 per cent of all infarcted hearts encounted at autopsy."

This finding indicates that a myocardial infarct is often well tolerated by the patient, the doctors said.

The average age of these 175 patients with old, unsuspected infarcts was 71 years. They had lived out their expected life span even though they had had an unsuspected heart disorder.

Principal causes of death were pulmonary disease, 47; cardiac disease, 39; neoplastic disease, 34; vascular disease, 31, and, miscellaneous, 24.

The report appears in the March Archives of Internal Medicine, a publication of the American Medical Association.

WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

ORLEANS PARISH

Mrs. Albert W. Habeeb, newly installed president of the Woman's Auxiliary to the Orleans Parish Medical Society, has appointed the following members to serve as committee chairmen on the executive board for the season 1958-59.

Mrs. Monte Meyer, Budget; Mrs. Francis X. Lothschuetz, Clothes collection and samples; Mrs. Benjamin F. Parker, Commemoration; Mrs. Daniel W. Beacham, Contact; Mrs. Charles Lafayette Brown, Graduate Medical Assembly Convention; Mrs. Eugene H. Countiss, La. State Medical Society Convention; Mrs. C. Grenes Cole, Southern Medical Society Convention; Mrs. Albert B. Pavy, Jr. Courtesy; Mrs. Boni J. DeLaureal, Doctor's Day; Mrs. Charles R. Robinson, Essay Contest; Mrs. William W. Frye, Historian; Mrs. Daniel W. Hayes, Hostesses; Mrs. J. Morgan Lyons, Legislation (LOSL); Mrs. Charles Farris, Jr., Membership; Mrs. Julius T. Davis, Jr., Notifications and Periodic Health; Mrs. James E. Bailey, Printing; Mrs. Carl J. Gulotta, Program; Mrs. Mercer G. Lynch, Publications; Mrs. Branch J. Aymond, Publicity; Mrs. Rufus W. Alldredge, Public Relations; Mrs. Spencer B. McNair, Recruitment; Mrs. William S. Neal, Registration; Mrs. Nathan Gisclair, Telephone; Mrs. Robert Kelleher, Volunteer Services.

Mrs. Branch J. Aymond,
Publicity Chairman.

BOOK REVIEWS

The Physician's Own Library; by Mary Louise Marshall, Springfield, Illinois, Charles C Thomas, c1957. 87 pp. Price $3.00.

In recent years medical libraries have assumed a more important role in medical teaching, research and practice due to the change in educational methods, and the enormous advances made in the art and science of medicine. To keep abreast of his times, every physician needs to have access to books. Although large libraries are essential, the doctor's library also fills a need as pointed out by Mary Louise Marshal in her book *The Physician's Own Library.* Today, even private collections of books are so large that some formal organization is necessary to enable the busy practitioner to make use of his books. Miss Marshall has outlined for the physician, who is faced with the problem of organizing his collection, some of the basic library techniques that he can employ to advantage. The chances are the physician will not feel called upon to read the entire book, but will consult it for special problems such as the handling of reprints, borrowing privileges from libraries and the physical care of books. This should prove a useful and informative monograph to the physician who plans to have a library of his own, and also, it could well serve as a guide to small institutional libraries.

WILLIAM D. POSTELL

PUBLICATIONS RECEIVED

Bailliere, Tindall & Cox, London: Aids to Medical Diagnosis, by G. E. F. Sutton, M.D. (8th edit.)

Doubleday & Co., N. Y.: Love, Skill & Mystery, A Handbook to Marriage, by Theodor Bovet.

Grune & Stratton, Inc., N. Y.: Progress in Arthritis, by John H. Talbott, M.D., and L. Maxwell Lockie, M.D.; Psychoendocrinology, edited by Max Reiss, M.D.; Ophthalmic Plastic Surgery, by Sidney A. Fox, M.D. (2nd edit.); Advances in Electrocardiography, Charles E. Kossmann, Editor; Progress in Psychotherapy—Volume III. Techniques of Psychotherapy, edited by Jules H. Masserman, M.D., and J.L. Moreno, M.D.; Science and Psychoanalysis, Volume I. Integrative Studies, edited by Jules H. Masserman, M.D.; Cardiovascular Diseases, by David Scherf, and Linn J. Boyd, M.D. (3rd edit.).

Paul B. Hoeber, Inc., N. Y.: Electrocardiographic Analysis, Volume I, Biophysical Principles of Electrocardiography, by Robert H. Bayley, M.D.

Intercontinental Medical Book Corp., N. Y.: Diseases of the Thyroid and Parathyroid Glands, by Bernard J. Ficarra, M.D.

Lange Medical Publications, Los Altos, Calif.: Correlative Neuroanatomy and Functional Neurology, by Joseph G. Chusid, M.D., and Joseph J. McDonald, M.D.

Little, Brown & Co., Boston: A Primer on Common Functional Disorders, by Jack W. Fleming, M.D.

The C. V. Mosby Co., St. Louis: Pediatric Index, by Edwin F. Patton, M.D.

Philosophical Library, N. Y.: Maimonides The Preservation of Youth, translated from the original Arabic (Fi Tadbir As-Sihha), with an Introduction by Hirsch L. Gordon, Ph.D.; Crime and Insanity, edited by Richard W. Nice.

W. B. Saunders Co., Phila.: Diagnostic Medical Parasitology, by Edward K. Markell, M.D., and Marietta Voge, Ph.D.

Vantage Press, Inc., N. Y.: Cancer and the Atomic Age, by Clement A. Tavares, M. D.; Memoirs of a G. P., by Otis Marshall, M.D.